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published in the Federal Register on Feb. 7, 2000.  
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## PART 91--GENERAL OPERATING AND FLIGHT RULES

### Special Federal Aviation Regulations

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SFAR No. 51-1  
SFAR No. 60  
SFAR No. 61-2  
SFAR No. 62  
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Authority: 49 U.S.C. 106(g), 1155, 40103, 40113, 40120, 44101, 44111,  
44701, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316,  
46504, 46506-46507, 47122, 47508, 47528-47531, articles 12 and 29 of the  
Convention on International Civil Aviation (61 stat. 1180).

Source: Docket No. 18334, Amdt. 91-211, 54 FR 34291, August 18, 1989,  
unless otherwise noted.

#### Special Federal Aviation Regulations

SFAR No. 29-4--Limited IFR Operations of Rotorcraft  
[Removed, 65 FR 3546, Jan. 21, 2000]

SFAR No. 50-2 -- SPECIAL FLIGHT RULES IN THE VICINITY OF THE GRAND CANYON  
NATIONAL PARK, AZ

Section 1. Applicability. This rule prescribes special operating rules for all  
persons operating aircraft in the following airspace, designated as the Grand  
Canyon National Park Special Flight Rules Area:

That airspace extending upward from the surface up to but not including 14,500 feet MSL within an area bounded by a line beginning at lat. 36 [degrees]09' 30" N., long. 114 [degrees]03' 00" W.; northeast to lat. 36 [degrees]14' 00" N., long. 113 [degrees]09' 50" W.; thence northeast along the boundary of the Grand Canyon National Park to lat. 36 [degrees]24' 47" N., long. 112 [degrees]52' 00" W.; to lat. 36 [degrees]30' 30" N., long. 112 [degrees]36' 15" W.; to lat. 36 [degrees]21' 30" N., long. 112 [degrees]00' 00" W.; to lat. 36 [degrees]35' 30" N., long. 111 [degrees]53' 10" W.; to lat. 36 [degrees]53' 00" N., long. 111 [degrees]36' 45" W.; to lat. 36 [degrees]53' 00" N., long. 111 [degrees]33' 00" W.; to lat. 36 [degrees]19' 00" N., long. 111 [degrees]50' 50" W.; to lat. 36 [degrees]17' 00" N., long. 111 [degrees]42' 00" W.; to lat. 35 [degrees]59' 30" N., long. 111 [degrees]42' 00" W.; to lat. 35 [degrees]57' 30" N., long. 112 [degrees]03' 55" W.; thence counterclockwise via the 5-statute mile radius of the Grand Canyon Airport reference point (lat. 35 [degrees]57' 09" N., long 112 [degrees]08' 47" W.) to lat. 35 [degrees]57' 30" N., long. 112 [degrees]14' 00" W.; to lat 35 [degrees]57' 30" N., long. 113 [degrees]11' 00" W.; to lat. 35 [degrees]42' 30" N., long. 113 [degrees]11' 00" W.; to lat. 35 [degrees]38' 30" N., long. 113 [degrees]27' 30" W.; thence counterclockwise via the 5-statute mile radius of the Peach Springs VORTAC to lat. 35 [degrees]41' 20" N., long. 113 [degrees]36' 00" W.; to lat. 35 [degrees]55' 25" N., long 113 [degrees]49' 10" W.; to lat. 35 [degrees]57' 45" N., long. 113 [degrees]45' 20" W.; thence northwest along the park boundary to lat. 36 [degrees]02' 20" N., long. 113 [degrees]50' 15" W.; to lat. 36 [degrees]00' 10" N., long., 113 [degrees]53' 45" W.; thence to the point of beginning.

Section 3. Aircraft operations: general. Except in an emergency, no person may operate an aircraft in the Special Flight Rules, Area under VFR on or after September 22, 1988, or under IFR on or after April 6, 1989, unless the operation --

(a) Is conducted in accordance with the following procedures:

Note: THE FOLLOWING PROCEDURES DO NOT RELIEVE THE PILOT FROM SEE-AND-AVOID RESPONSIBILITY OR COMPLIANCE WITH FAR 91.119.

(1) Unless necessary to maintain a safe distance from other aircraft or terrain--

(i) Remain clear of the areas described in Section 4; and

(ii) Remain at or above the following altitudes in each sector of the canyon:

Eastern section from Lees Ferry to North Canyon and North Canyon to Boundary Ridge: as prescribed in Section 5.

Boundary Ridge to Supai Point (Yumtheska Point): 10,000 feet MSL.

Western section from Diamond Creek to the Grant Wash Cliffs: 8,000 feet MSL.

(2) Proceed through the four flight corridors describe in Section 4 at the following altitudes unless otherwise authorized in writing by the Flight Standards District Office:

Northbound  
11,500 or  
13,500 feet MSL

Southbound  
10,500 or  
12,500 feet MSL

(b) Is authorized in writing by the Flight Standards District Office and is

conducted in compliance with the conditions contained in that authorization. Normally authorization will be granted for operation in the areas described in Section 4 or below the altitudes listed in Section 5 only for operations of aircraft necessary for law enforcement, firefighting, emergency medical treatment/evacuation of persons in the vicinity of the Park; for support of Park maintenance or activities; or for aerial access to and maintenance of other property located within the Special Flight Rules Area. Authorization may be issued on a continuing basis.

(c)(1) Prior to November 1, 1988, is conducted in accordance with a specific authorization to operate in that airspace incorporated in the operator's part 135 operations specifications in accordance with the provisions of SFAR 50-1, notwithstanding the provisions of Sections 4 and 5; and

(2) On or after November 1, 1988, is conducted in accordance with a specific authorization to operate in that airspace incorporated in the operator's operations specifications and approved by the Flight Standards District Office in accordance with the provisions of SFAR 50-2.

(d) Is a search and rescue mission directed by the U.S. Air Force Rescue Coordination Center.

(e) Is conducted within 3 nautical miles of Whitmore Airstrip, Pearce Ferry Airstrip, North Rim Airstrip, Cliff Dwellers Airstrip, or Marble Canyon Airstrip at an altitudes less than 3,000 feet above airport elevation, for the purpose of landing at or taking off from that facility. Or

(f) Is conducted under an IFR clearance and the pilot is acting in accordance with ATC instructions. An IFR flight plan may not be filed on a route or at an altitude that would require operation in an area described in Section 4.

Sec. 4. Flight-free zones. Except in an emergency or if otherwise necessary for safety of flight, or unless otherwise authorized by the Flight Standards District Office for a purpose listed in Section 3(b), no person may operate an aircraft in the Special Flight Rules Area within the following areas:

(a) Desert View Flight-Free Zone. Within an area bounded by a line beginning at Lat. 35[degrees]59'30" N., Long. 111[degrees]46'20" W. to 35[degrees]59'30" N., Long. 111[degrees]52'45" W.; to Lat. 36[degrees]04'50" N., Long. 111[degrees]52'00" W.; to Lat. 36[degrees]06'00" N., Long. 111[degrees]46'20" W.; to the point of origin; but not including the airspace at and above 10,500 feet MSL within 1 mile of the western boundary of the zone. The area between the Desert View and Bright Angel Flight-Free Zones is designated the "Zuni Point Corridor."

(b) Bright Angel Flight-Free Zone. Within an area bounded by a line beginning at Lat. 35[degrees]59'30" N., Long. 111[degrees]55'30" W.; to Lat. 35[degrees]59'30" N., Long. 112[degrees]04'00" W.; thence counterclockwise via the 5-statute-mile radius of the Grand Canyon Airport point (Lat. 35[degrees]57'09" N., Long. 112[degrees]08'47" W.) to Lat. 36[degrees]01'30" N., Long. 112[degrees]11'00" W.; to Lat. 36[degrees]06'15" N., Long. 112[degrees]12'50" W.; to Lat. 36[degrees]14'40" N., Long. 112[degrees]08'50" W.; to Lat. 36[degrees]14'40" N., Long. 111[degrees]57'30" W.; to Lat. 36[degrees]12'30" N., Long. 111[degrees]53'50" W.; to the point of origin; but not including the airspace at and above 10,500 feet MSL within 1 mile of the eastern boundary between the southern boundary and Lat. 36[degrees]04'50" N. or the airspace at and above 10,500 feet MSL within 2 miles of the northwest boundary. The area bounded by the Bright Angel and Shinumo Flight-Free Zones is designated the "Dragon Corridor."

(c) Shinumo Flight-Free Zone. Within an area bounded by a line beginning at lat. 36[degrees]04'00" N., long. 112[degrees]16'40" W.; northwest along the park boundary to a point at lat. 36[degrees]12'47" N., long. 112[degrees]30'53" W.; to lat. 36[degrees]21'15" N., long. 112[degrees]20'20" W.; east along the park boundary to lat. 36[degrees]21'15" N., long. 112[degrees]13'55" W.; to lat. 36[degrees]14'40" N., long. 112[degrees]11'25" W.; to the point of origin. The area between the Thunder River/Toroweap and Shinumo Flight-Free Zones is designated the "Fossil Canyon Corridor."

(d) Toroweap/Thunder River Flight-Free Zone. Within an area bounded by a line beginning at lat. 36[degrees]22'45" N., long. 112[degrees]20'35" W.; thence northwest along the boundary of the Grand Canyon National Park to lat. 36[degrees]17'48" N., long. 113[degrees]03'15" W.; to lat. 36[degrees]15'00" N., long. 113[degrees]07'10" W.; to lat. 36[degrees]10'30" N., long. 113[degrees]07'10" W.; thence east along the Colorado River to the confluence of Havasu Canyon (lat. 36[degrees]18'40" N., long. 112[degrees]45'45" W.;) including that area within a 1.5-nautical-mile radius of Toroweap Overlook (lat. 36[degrees]12'45" N., long. 113[degrees]03'30" W.) to the point of origin; but not including the following airspace designated as the "Tuckup Corridor": at or above 10,500 feet MSL within 2 nautical miles either side of a line extending between lat. 36[degrees]24'47" N., long. 112[degrees]48'50" W.; and lat. 36[degrees]17'10" N., long. 112[degrees]48'50" W.; to the point of origin.

Sec. 5. Minimum flight altitudes. Except in an emergency or if otherwise necessary for safety of flight, or unless otherwise authorized by the Flight Standards District Office for a purpose listed in Section 3(b), no person may operate an aircraft in the Special Flight Rules Area at an altitude lower than the following:

- (a) Eastern section from Lees Ferry to North Canyon: 5,000 feet MSL.
- (b) Eastern section from North Canyon to Boundary Ridge: 6,000 feet MSL.
- (c) Boundary Ridge to Supai (Yumtheska) Point: 7,500 feet MSL.
- (d) Supai Point to Diamond Creek: 6,500 feet MSL.
- (e) Western section from Diamond Creek to the Grand Wash Cliffs: 5,000 feet MSL.

Sec. 9. Termination date. Sections 1. Applicability, Section 4, Flight-free zones, and Section 5. Minimum flight altitudes, expire on 0901 UTC, January 31, 2001.

Image [Insert Image Here]

[SFAR 50-2, 53 FR 20273, June 2, 1988; 53 FR 21988, June 13, 1988; 53 FR 32603, Aug. 26, 1988, as amended at 53 FR 36947, Sept. 22, 1988; 54 FR 11927, Mar. 22, 1989; 54 FR 34331, Aug. 18, 1989; 55 FR 13445, Apr. 10, 1990; 55 FR 15320, Apr. 23, 1990; 57 FR 26766, June 15, 1992; 60 FR 31610, June 15, 1995; 60 FR 65832, 65913, Dec. 20, 1995; 61 FR 69302, 69330, Dec. 31, 1996, as reinstated and amended at 62 FR 8862, 8864, Feb. 26, 1997, as corrected at 63 FR 23604, April 29, 1998 and at 63 FR 63788, Nov. 17, 1998; Doc. No. 28537, Amdt. 91-255, 62 FR 66248, 66250, Dec. 17, 1997; 64 FR 5152, 5154, Feb. 3, 1999; 65 FR 5397, Feb. 3, 2000]

SFAR No. 51-1--Special Flight Rules in the Vicinity of Los Angeles  
International Airport

Section 1. Applicability: This rule establishes a special operating area for persons operating aircraft under visual flight rules (VFR) in the

following airspace of the Los Angeles Class B airspace area designated as the Los Angeles Special Flight Rules Area:

That part of Area A of the Los Angeles TCA between 3,500 feet above mean sea level (MSL) and 4,500 feet MSL, inclusive, bounded on the north by Ballona Creek, on the east by the San Diego Freeway, on the south by Imperial Highway, and on the west by the Pacific Ocean shoreline.

Section 2. Aircraft operations, general. Unless otherwise authorized by the Administrator, no person may operate an aircraft in the airspace described in Section 1 unless the operation is conducted under the following rules.

a. The flight must be conducted under VFR and only when operation may be conducted in compliance with Sec. 91.155(a).

b. The aircraft must be equipped as specified in FAR 91.215(b) replying on Code 1201 prior to entering and while operating in this area.

c. The pilot shall have a current Los Angeles Terminal Area Chart in the aircraft.

d. The pilot shall operate on the Santa Monica very high frequency omnidirectional radio range (VOR) 132 deg. radial.

e. Operations in a southeasterly direction shall be in level flight at 3,500 feet MSL.

f. Operations in a northwesterly direction shall be in level flight at 4,500 feet MSL.

g. Indicated airspeed shall not exceed 140 knots.

h. Anticollision lights and aircraft position/navigation lights shall be on. Use of landing lights is recommended.

i. Turbojet aircraft are prohibited from VFR operations in this area

Section 3. Notwithstanding the provisions of Sec. 91.131(a), an air traffic control authorization is not required in the Los Angeles Special Flight Rules Area for operations in compliance with section 2 of this SFAR. All other provisions of Sec. 91.131 apply to operate in the Special Flight Rules Area.

Authority: 49 U.S.C. app. 1303, 1348, 1354(a), 1421, and 1422; 49 U.S.C. 106(g).

[Doc. No. 87-AWA-31, SFAR 51-1, 53 FR 3812, Feb. 9, 1988, as amended by Amdt. 91-227, 56 FR 65652, Dec. 17, 1991]

#### Special Federal Aviation Regulation No. 60--Air Traffic Control System Emergency Operation

1. Each person shall, before conducting any operation under the Federal Aviation Regulations (14 CFR chapter I), be familiar with all available information concerning that operation, including Notices to Airmen issued under Sec. 91.139 and, when activated, the provisions of the National Air Traffic Reduced Complement Operations Plan available for inspection at operating air traffic facilities and Regional air traffic division offices, and the General Aviation Reservation Program. No operator may change the designated airport of intended operation for any flight contained in the October 1, 1990, OAG.

2. Notwithstanding any provision of the Federal Aviation Regulations to the contrary, no person may operate an aircraft in the Air Traffic Control System:

a. Contrary to any restriction, prohibition, procedure or other action taken by the Director of the Office of Air Traffic Systems Management (Director) pursuant to paragraph 3 of this regulation and announced in a Notice to Airmen pursuant to Sec. 91.139 of the Federal Aviation Regulations.

b. When the National Air Traffic Reduced Complement Operations Plan

is activated pursuant to paragraph 4 of this regulation, except in accordance with the pertinent provisions of the National Air Traffic Reduced Complement Operations Plan.

3. Prior to or in connection with the implementation of the RCOP, and as conditions warrant, the Director is authorized to:

a. Restrict, prohibit, or permit VFR and/or IFR operations at any airport, Class B airspace area, Class C airspace area, or other class of controlled airspace.

b. Give priority at any airport to flights that are of military necessity, or are medical emergency flights, Presidential flights, and flights transporting critical Government employees.

c. Implement, at any airport, traffic management procedures, that may include reduction of flight operations. Reduction of flight operations will be accomplished, to the extent practical, on a pro rata basis among and between air carrier, commercial operator, and general aviation operations. Flights cancelled under this SFAR at a high density traffic airport will be considered to have been operated for purposes of part 93 of the Federal Aviation Regulations.

4. The Director may activate the National Air Traffic Reduced Complement Operations Plan at any time he finds that it is necessary for the safety and efficiency of the National Airspace System. Upon activation of the RCOP and notwithstanding any provision of the FAR to the contrary, the Director is authorized to suspend or modify any airspace designation.

5. Notice of restrictions, prohibitions, procedures and other actions taken by the Director under this regulation with respect to the operation of the Air Traffic Control system will be announced in Notices to Airmen issued pursuant to Sec. 91.139 of the Federal Aviation Regulations.

6. The Director may delegate his authority under this regulation to the extent he considers necessary for the safe and efficient operation of the National Air Traffic Control System.

[Doc. No. 26351, 55 FR 40760, Oct. 4, 1990, as amended by Amdt. 91-227, 56 FR 65652, Dec. 17, 1991]

#### Special Federal Aviation Regulation No. 61-2

##### Prohibition Against Certain Flights Between the United States and Iraq

1. Applicability. This Special Federal Aviation Regulation (SFAR) No. 61-2 applies to all aircraft operations originating from, landing in, or overflying the territory of the United States.

2. Special flight restrictions. Except as provided in paragraphs 3 and 4 of this SFAR No. 61-2--

(a) No person shall operate an aircraft on a flight to any point in Iraq, or to any intermediate point on a flight where the ultimate destination is any point in Iraq or that includes a landing at any point in Iraq in its intended itinerary, from any point in the United States;

(b) No person shall operate an aircraft on a flight to any point in the United States from any point in Iraq, or from any intermediate point on a flight where the origin is in Iraq, or from any point on a flight which includes a departure from any point in Iraq in its intended itinerary; or

(c) No person shall operate an aircraft over the territory of the United States if that aircraft's flight itinerary includes any landing at or departure from any point in Iraq.

3. Permitted operations. This SFAR shall not prohibit the flight operations between the United States and Iraq described in section 2 of this SFAR by an

aircraft authorized to conduct such operations by the United States Government in consultation with the committee established by UN Security Council Resolution 661 (1990), and in accordance with UN Security Council Resolution 666 (1990).

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR 121.557, 121.559, or 135.19, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations or the aircraft involved in the deviation, including a description of the deviation and the reasons therefore.

5. Duration. This SFAR No. 61-2 shall remain in effect until further notice.

[60 FR 49139, Sept. 21, 1995]

#### Special Federal Aviation Regulation No. 62

##### Suspension of Certain Aircraft Operations from the Transponder with Automatic Pressure Altitude Reporting Capability Requirement

###### Section 1. For purposes of this SFAR:

(a) The airspace within 30 nautical miles of a Class B airspace area primary airport, from the surface upward to 10,000 feet MSL, excluding the airspace designated as a Class B airspace area is referred to as the Mode C veil.

(b) Effective until December 30, 1993, the transponder with automatic altitude reporting capability requirements of FAR Sec. 91.215(b) (2) do not apply to the operation of an aircraft:

(1) In the airspace at or below the specified altitude and within a 2-nautical-mile radius, or, if directed by ATC, within a 5-nautical mile radius, of an airport listed in section 2 of this SFAR; and

(2) In the airspace at or below the specified altitude along the most direct and expeditious routing, or on a routing directed by ATC, between an airport listed in section 2 of this SFAR and the outer boundary of the Mode C veil airspace overlying that airport, consistent with established traffic patterns, noise abatement procedures, and safety.

Section 2. Effective until December 30, 1993. Airports at which the provisions of Sec. 91.215(b) (2) do not apply.

(1) Airports within a 30-nautical-mile radius of The William B. Hartsfield Atlanta International Airport.

Airport name	Arpt ID	Alt. (AGL)
Air Acres Airport, Woodstock, GA	5GA4	1,500
B & L Strip Airport, Hollonville, GA	GA29	1,500
Camfield Airport, McDonough, GA	GA36	1,500
Cobb County-McCollum Field Airport, Marietta, GA	RYY	1,500
Covington Municipal Airport, Covington, GA	9A1	1,500
Diamond R Ranch Airport, Villa Rica, GA	3GA5	1,500
Dresden Airport, Newnan, GA	GA79	1,500
Eagles Landing Airport, Williamson, GA	5GA3	1,500
Fagundes Field Airport, Haralson, GA	6GA1	1,500

Gable Branch Airport, Haralson, GA	5GA0	1,500
Georgia Lite Flite Ultralight Airport, Acworth, GA	31GA	1,500
Griffin-Spalding County Airport, Griffin, GA	6A2	1,500
Howard Private Airport, Jackson, GA	GA02	1,500
Newnan Coweta County Airport, Newnan, GA	CCO	1,500
Peach State Airport, Williamson, GA	3GA7	1,500
Poole Farm Airport, Oxford, GA	2GA1	1,500
Powers Airport, Hollonville, GA	GA31	1,500
S & S Landing Strip Airport, Griffin, GA	8GA6	1,500
Shade Tree Airport, Hollonville, GA	GA73	1,500

(2) Airports within a 30-nautical-mile radius of the General Edward Lawrence Logan International Airport.

Airport name	Arpt ID	Alt. (AGL)
Berlin Landing Area Airport, Berlin, MA	MA19	2,500
Hopedale Industrial Park Airport, Hopedale, MA	1B6	2,500
Larson's SPB, Tyngsboro, MA	MA74	2,500
Moore AAF, Ayer/Fort Devens, MA	AYE	2,500
New England Gliderport, Salem, NH	NH29	2,500
Plum Island Airport, Newburyport, MA	2B2	2,500
Plymouth Municipal Airport, Plymouth, MA	PYM	2,500
Taunton Municipal Airport, Taunton, MA	TAN	2,500
Unknown Field Airport, Southborough, MA	1MA5	2,500

(3) Airports within a 30-nautical-mile radius of the Charlotte/Douglas International Airport.

Airport name	Arpt ID	Alt. (AGL)
Arant Airport, Wingate, NC	1NC6	2,500
Bradley Outernational Airport, China Grove, NC	NC29	2,500
Chester Municipal Airport, Chester, SC	9A6	2,500
China Grove Airport, China Grove, NC	76A	2,500
Goodnight's Airport, Kannapolis, NC	2NC8	2,500
Knapp Airport, Marshville, NC	3NC4	2,500
Lake Norman Airport, Mooresville, NC	14A	2,500
Lancaster County Airport, Lancaster, SC	LKR	2,500
Little Mountain Airport, Denver, NC	66A	2,500
Long Island Airport, Long Island, NC	NC26	2,500
Miller Airport, Mooresville, NC	8A2	2,500
U S Heliport, Wingate, NC	NC56	2,500
Unity Aerodrome Airport, Lancaster, SC	SC76	2,500
Wilhelm Airport, Kannapolis, NC	6NC2	2,500

(4) Airports within a 30-nautical-mile radius of the Chicago-O'Hara International Airport.

Airport name	Arpt ID	Alt. (AGL)
Aurora Municipal Airport, Chicago/Aurora, IL	ARR	1,200
Donald Alfred Gade Airport, Antioch, IL	IL11	1,200
Dr. Joseph W. Esser Airport, Hampshire, IL	7IL6	1,200
Flying M. Farm Airport, Aurora, IL	IL20	1,200
Fox Lake SPB, Fox Lake, IL	IS03	1,200
Graham SPB, Crystal Lake, IL	IS79	1,200

Herbert C. Mass Airport, Zion, IL	IL02	1,200
Landings Condominium Airport, Romeoville, IL	C49	1,200
Lewis University Airport, Romeoville, IL	LOT	1,200
McHenry Farms Airport, McHenry, IL	44IL	1,200
Olson Airport, Plato Center, IL	LL53	1,200
Redeker Airport, Milford, IL	IL85	1,200
Reid RLA Airport, Gilberts, IL	6IL6	1,200
Shamrock Beef Cattle Farm Airport, McHenry, IL	49LL	1,200
Sky Soaring Airport, Union, IL	55LL	1,200
Waukegan Regional Airport, Waukegan, IL	UGN	1,200
Wormley Airport, Oswego, IL	85LL	1,200

(5) Airports within a 30-nautical-mile radius of the Cleveland-Hopkins International Airport.

Airport name	Arpt ID	Alt. (AGL)
Akron Fulton, International Airport, Akron, OH	AKR	1,300
Bucks Airport, Newbury, OH	40OH	1,300
Derecsky Airport, Auburn Center, OH	60IO	1,300
Hannum Airport, Streetsboro, OH	69OH	1,300
Kent State University Airport, Kent, OH	1G3	1,300
Lost Nation Airport, Willoughby, OH	LNN	1,300
Mills Airport, Mantua, OH	OH06	1,300
Portage County Airport, Ravenna, OH	29G	1,300
Stoney's Airport, Ravenna, OH	OI32	1,300
Wadsworth Municipal, Airport, Wadsworth, OH	3G3	1,300

(6) Airports within a 30-nautical-mile radius of the Dallas/Fort Worth International Airport.

Airport name	Arpt. ID	Alt. (AGL)
Beggs Ranch/Aledo Airport, Aledo, TX	TX15	1,800
Belcher Airport, Sanger, TX	TA25	1,800
Bird Dog Field Airport, Krum, TX	TA48	1,800
Boe-Wrinkle Airport, Azle, TX	28TS	1,800
Flying V Airport, Sanger, TX	71XS	1,800
Graham Ranch Airport, Celina, TX	TX44	1,800
Haire Airport, Bolivar, TX	TX33	1,800
Hartlee Field Airport, Denton, TX	1F3	1,800
Hawkin's Ranch Strip Airport, Rhome, TX	TA02	1,800
Horseshoe Lake Airport, Sanger, TX	TE24	1,800
Ironhead Airport, Sanger, TX	T58	1,800
Kezer Air Ranch Airport, Springtown, TX	61F	1,800
Lane Field Airport, Sanger, TX	58F	1,800
Log Cabin Airport, Aledo, TX	TX16	1,800
Lone Star Airpark Airport, Denton, TX	T32	1,800
Rhame Meadows Airport, Rhome, TX	TS72	1,800
Richards Airport, Krum, TX	TA47	1,800
Tallows Field Airport, Celina, TX	79TS	1,800
Triple S Airport, Aledo, TX	42XS	1,800
Warshun Ranch Airport, Denton, TX	4TA1	1,800
Windy Hill Airport, Denton, TX	46XS	1,800
Aero Country Airport, McKinney, TX	TX05	1,400
Bailey Airport, Midlothian, TX	7TX8	1,400
Bransom Farm Airport, Burleson, TX	TX42	1,400
Carroll Air Park Airport, De Soto, TX	F66	1,400

Carroll Lake-View Airport, Venus, TX	70TS	1,400
Eagle's Nest Estates Airport, Ovilla, TX	2T36	1,400
Flying B Ranch Airport, Ovilla, TX	TS71	1,400
Lancaster Airport, Lancaster, TX	LNC	1,400
Lewis Farm Airport, Lucas, TX	6TX1	1,400
Markum Ranch Airport, Fort Worth, TX	TX79	1,400
McKinney Municipal Airport, McKinney, TX	TKI	1,400
O'Brien Airpark Airport, Waxahachie, TX	F25	1,400
Phil L. Hudson Municipal Airport, Mesquite, TX	HQZ	1,400
Plover Heliport, Crowley, TX	82Q	1,400
Venus Airport, Venus, TX	75TS	1,400

(7) Airports within a 30-nautical-mile radius of the Denver International Airport.

Airport name	Arpt ID	Alt. (AGL)
Air Dusters Inc., Airport, Roggen, CO	49CO	1,200
Bijou Basin Airport, Byers, CO	CD17	1,200
Boulder Municipal Airport, Boulder, CO	1V5	1,200
Bowen Farms No. 1 Airport, Littleton, CO	CO98	1,200
Bowen Farms No. 2 Airport, Strasburg, CO	3CO5	1,200
Carrera Airpark Airport, Mead, CO	93CO	1,200
Cartwheel Airport, Mead, CO	0CO8	1,200
Chaparral Airport, Byers, CO	CO18	1,200
Colorado Antique Field Airport, Niwot, CO	8CO7	1,200
Comanche Livestock Airport, Strasburg, CO	59CO	1,200
Dead Stick Ranch Airport, Kiowa, CO	18CO	1,200
Frederick-Firestone Air Strip Airport, Frederick, CO	CO58	1,200
Frontier Airstrip Airport, Mead, CO	84CO	1,200
Horseshoe Landings Airport, Keenesburg, CO	CO60	1,200
Hoy Airstrip Airport, Bennett, CO	76CO	1,200
J & S Airport, Bennett, CO	CD14	1,200
Kostroski Airport, Franktown, CO	43CO	1,200
Kugel-Strong Airport, Platteville, CO	27V	1,200
Land Airport, Keenesburg, CO	CO82	1,200
Lemons Private Strip Airport, Boulder, CO	CO10	1,200
Lindys Airpark Airport, Hudson, CO	7CO3	1,200
Parkland Airport, Erie, CO	7CO0	1,200
Pine View Airport, Elizabeth, CO	02V	1,200
Platte Valley Airport, Hudson, CO	18V	1,200
Rancho De Aereo Airport, Mead, CO	05CO	1,200
Reid Ranches Airport, Roggen, CO	7CO6	1,200
Singleton Ranch Airport, Byers, CO	68CO	1,200
Sky Haven Airport, Byers, CO	CO17	1,200
Spickard Farm Airport, Byers, CO	5CO4	1,200
Tri-County Airport, Erie, CO	48V	1,200
Westberg-Rosling Farms Airport, Roggen, CO	74CO	1,200
Yoder Airstrip Airport, Bennett, CO	CD09	1,200

(8) Airports within a 30-nautical-mile radius of the Detroit Metropolitan Wayne County Airport.

Airport name	Arpt. ID	Alt. (AGL)
Al Meyers Airport, Tecumseh, MI	3TE	1,400
Brighton Airport, Brighton, MI	45G	1,400
Cackleberry Airport, Dexter, MI	2MI9	1,400

Erie Aerodome Airport, Erie, MI	05MI	1,400
Ham-A-Lot Field Airport, Petersburg, MI	MI48	1,400
Merillat Airport, Tecumseh, MI	34G	1,400
Rossettie Airport, Manchester, MI	75G	1,400
Tecumseh Products Airport, Tecumseh, MI	0D2	1,400

(9) Airport within a 30-nautical-mile radius of the Honolulu International Airport.

Aiport name	Arpt. ID	Alt. (AGL)
Dillingham Airfield Airport, Mokuleia, HI	HDH	2,500

(10) Airports within a 30-nautical-mile radius of the Houston Intercontinental Airport and the William P. Hobby Airport.

Airport name	Arpt. ID	Alt. (AGL)
Ainsworth Airport, Cleveland, TX	OT6	1,200
Ausinia Ranch Airport, Texas City, TX	TS50	1,200
Bailes Airport, Angleton, TX	7R9	1,200
Biggin Hill Airport, Hockley, TX	TX49	1,200
Cleveland Municipal Airport, Cleveland, TX	6R3	1,200
Covey Trails Airport, Fulshear, TX	80XS	1,200
Creasy Airport, Santa Fe, TX	5TA5	1,200
Custom Aire Service Airport, Angleton, TX	81D	1,200
Fay Ranch Airport, Cedar Lane, TX	OT2	1,200
Flying C Ranch Airport, Needville, TX	XS25	1,200
Freeman Property Airport, Katy, TX	61T	1,200
Garrett Ranch Airport, Danbury, TX	77XS	1,200
Gum Island Airport, Dayton, TX	3T6	1,200
H & S Airfield Airport, Damon, TX	XS21	1,200
Harbican Airpark Airport, Katy, TX	9XS9	1,200
Harold Freeman Farm Airport, Katy, TX	8XS1	1,200
HHI Hitchcock Heliport, Hitchcock, TX	6TA5	1,200
Hoffpauir Airport, Katy, TX	59T	1,200
Horn-Katy Hawk International Airport, Katy, TX	57T	1,200
Johnnie Volk Field Airport, Hitchcock, TX	37R	1,200
King Air Airport, Katy, TX	55T	1,200
Lake Bay Gall Airport, Cleveland, TX	OT5	1,200
Lake Bonanza Airport, Montgomery, TX	33TA	1,200
Lane Airpark Airport, Rosenberg, TX	T54	1,200
Meyer Field Airport, Rosharon, TX	TA33	1,200
Prairie Aire Field Airport, Damon, TX	4TA0	1,200
R W J Airpark Airport, Baytown, TX	54TX	1,200
Westheimer Air Park Airport, Houston, TX	5TA4	1,200

(11) Airports within a 30-nautical-mile radius of the Kansas City International Airport.

Airport name	Arpt. ID	Alt. (AGL)
Amelia Earhart Airport, Atchison, KS	K59	1,000
Booze Island Airport, St. Joseph, MO	64MO	1,000
Cedar Air Park Airport, Olathe, KS	51K	1,000
D'Field Airport, McLouth, KS	KS90	1,000
Dorei Airport, McLouth, KS	K69	1,000

East Kansas City Airport, Grain Valley, MO	3GV	1,000
Excelsior Springs Memorial Airport, Excelsior Springs, MO	3EX	1,000
Flying T Airport Oskaloosa, KS	7KS0	1,000
Hermon Farm Airport, Gardner, KS	KS59	1,000
Hillside Airport, Stilwell, KS	63K	1,000
Independence Memorial Airport, Independence, MO	3IP	1,000
Johnson County Executive Airport, Olathe, KS	OJC	1,000
Johnson County Industrial Airport, Olathe, KS	IXD	1,000
Kimray Airport, Plattsburg, MO	7MO7	1,000
Lawrence Municipal Airport, Lawrence, KS	LWC	1,000
Martins Airport, Lawson, MO	21MO	1,000
Mayes Homestead Airport, Polo, MO	37MO	1,000
McComas-Lee's Summit Municipal Airport, Lee's Summit, MO	K84	1,000
Mission Road Airport, Stilwell, KS	64K	1,000
Northwood Airport, Holt, MO	2MO2	1,000
Plattsburg Airpark, Airport, Plattsburg, MO	MO28	1,000
Richards-Gebaur Airport, Kansas City, MO	GVW	1,000
Rosecrans Memorial Airport, St. Joseph, MO	STJ	1,000
Runway Ranch Airport, Kansas City, MO	2MO9	1,000
Sheller's Airport, Tonganoxie, KS	11KS	1,000
Shomin Airport, Oskaloosa, KS	OKS1	1,000
Stonehenge Airport, Williams-town, KS	71KS	1,000
Threshing Bee Airport, McLouth, KS	41K	1,000

(12) Airport within a 30-nautical-mile radius of the McCarran International Airport.

Airport name	Arpt ID	Alt. (AGL)
Sky Ranch Estates Airport, Sandy Valley, NV	3L2	2,500

(13) Airports within a 30-nautical-mile radius of the Memphis International Airport.

Airport name	Arpt ID	Alt. (AGL)
Bernard Manor Airport, Earle, AR	65M	2,500
Holly Springs-Marshall County Airport, Holly Springs, MS	M41	2,500
McNeely Airport, Earle, AR	M63	2,500
Price Field Airport, Joiner, AR	80M	2,500
Tucker Field Airport, Hughes, AR	78M	2,500
Tunica Airport, Tunica, MS	30M	2,500
Tunica Municipal Airport, Tunica, MS	M97	2,500

(14) Airports within a 30-nautical-mile radius of the Minneapolis-St. Paul International Wold-Chamberlain Airport.

Airport name	Arpt ID	Alt. (AGL)
Belle Plaine Airport, Belle Plaine, MN	7Y7	1,200
Carleton Airport, Stanton, MN	SYN	1,200
Empire Farm Strip Airport, Bongards, MN	MN15	1,200
Flying M Ranch Airport, Roberts, WI	78WI	1,200
Johnson Airport, Rockford, MN	MY86	1,200
River Falls Airport, River Falls, WI	Y53	1,200
Rusmar Farms Airport, Roberts, WI	WS41	1,200
Waldref SPB, Forest Lake, MN	9Y6	1,200

Ziermann Airport, Mayer, MN

MN71 1,200

(15) Airports within a 30-nautical-mile radius of the New Orleans International/Moisant Field Airport.

Airport name	Arpt ID	Alt. (AGL)
Bollinger SPB, Larose, LA	L38	1,500
Clovelly Airport, Cut Off, LA	LA09	1,500

(16) Airports within a 30-nautical-mile radius of the John F. Kennedy International Airport, the La Guardia Airport, and the Newark International Airport.

Airport name	Arpt ID	Alt. (AGL)
Allaire Airport, Belmar/Farmingdale, NJ	BLM	2,000
Cuddihy Landing Strip Airport, Freehold, NJ	NJ60	2,000
Ekdahl Airport, Freehold, NJ	NJ59	2,000
Fla-Net Airport, Netcong, NJ	ONJ5	2,000
Forrestal Airport, Princeton, NJ	N21	2,000
Greenwood Lake Airport, West Milford, NJ	4N1	2,000
Greenwood Lake SPB, West Milford, NJ	6NJ7	2,000
Lance Airport, Whitehouse Station, NJ	6NJ8	2,000
Mar Bar L Farms, Englishtown, NJ	NJ46	2,000
Peekskill SPB, Peekskill, NY	7N2	2,000
Peters Airport, Somerville, NJ	4NJ8	2,000
Princeton Airport, Princeton/Rocky Hill, NJ	39N	2,000
Solberg-Hunterdon Airport, Readington, NJ	N51	2,000

(17) Airports within a 30-nautical-mile radius of the Orlando International Airport.

Airport name	Arpt ID	Alt. (AGL)
Arthur Dunn Air Park Airport, Titusville, FL	X21	1,400
Space Center Executive Airport, Titusville, FL	TIK	1,400

(18) Airports within a 30-nautical-mile radius of the Philadelphia International Airport.

Airport name	Arpt ID	Alt. (AGL)
Ginns Airport, West Grove, PA	78N	1,000
Hammonton Municipal Airport, Hammonton, NJ	N81	1,000
Li Calzi Airport, Bridgeton, NJ	N50	1,000
New London Airport, New London, PA	N01	1,000
Wide Sky Airpark Airport, Bridgeton, NJ	N39	1,000

(19) Airports within a 30-nautical-mile radius of the Phoenix Sky Harbor International Airport.

Airport name	Arpt ID	Alt. (AGL)
Ak Chin Community Airfield Airport, Maricopa, AZ	E31	2,500

Boulais Ranch Airport, Maricopa, AZ	9E7	2,500
Estrella Sailport, Maricopa, AZ	E68	2,500
Hidden Valley Ranch Airport, Maricopa, AZ	AZ17	2,500
Millar Airport, Maricopa, AZ	2AZ4	2,500
Pleasant Valley Airport, New River, AZ	AZ05	2,500
Serene Field Airport, Maricopa, AZ	AZ31	2,500
Sky Ranch Carefree Airport, Carefree, AZ	E18	2,500
Sycamore Creek Airport, Fountain Hills, AZ	0AS0	2,500
University of Arizona, Maricopa Agricultural Center Airport, Maricopa, AZ	3AZ2	2,500

(20) Airports within a 30-nautical-mile radius of the Lambert/St. Louis International Airport.

Airport name	Arpt ID	Alt. (AGL)
Blackhawk Airport, Old Monroe, MO	6MO0	1,000
Lebert Flying L Airport, Lebanon, MO	3H5	1,000
Shafer Metro East Airport, St. Jacob, IL	3K6	1,000
Sloan's Airport, Elsberry, MO	0MO8	1,000
Wentzville Airport, Wentzville, MO	MO50	1,000
Woodliff Airpark Airport, Foristell, MO	98MO	1,000

(21) Airports within a 30-nautical-mile radius of the Salt Lake City International Airport.

Airport name	Arpt ID	Alt. (AGL)
Bolinder Field-Tooele Valley Airport, Tooele, UT	TVY	2,500
Cedar Valley Airport, Cedar Fort, UT	UT10	2,500
Morgan County Airport, Morgan, UT	42U	2,500
Tooele Municipal Airport, Tooele, UT	U26	2,500

(22) Airports within a 30-nautical-mile radius of the Seattle-Tacoma International Airport.

Airport name	Arpt ID	Alt. (AGL)
Firstair Field Airport, Monroe, WA	WA38	1,500
Gower Field Airport, Olympia, WA	6WAZ	1,500
Harvey Field Airport, Snohomish, WA	S43	1,500

(23) Airports within a 30-nautical-mile radius of the Tampa International Airport.

Airport name	Arpt ID	Alt. (AGL)
Hernando County Airport, Brooksville, FL	BKV	1,500
Lakeland Municipal Airport, Lakeland, FL	LAL	1,500
Zephyrhills Municipal Airport, Zephyrhills, FL	ZPH	1,500

(24) Effective until the establishment of the Washington Tri-Area Class B airspace area or December 30, 1993, whichever occurs first: Airports within a 30-nautical-mile radius of the Washington National Airport and Andrews Air Force Base Airport.

Airport name	Arpt ID	Alt. (AGL)
Barnes Airport, Lisbon, MD	MD47	2,000
Bay Bridge Airport, Stevensville, MD	W29	2,000
Castle Marina Airport, Chester, MD	OW6	2,000
Davis Airport, Laytonsville, MD	W50	2,000
Fremont Airport, Kemptown, MD	MD41	2,000
Kentmorr Airpark Airport, Stevensville, MD	3W3	2,000
Montgomery County Airpark Airport, Gaithersburg, MD	GAI	2,000
Waredaca Farm Airport, Brookeville, MD	MD16	2,000
Aqua-Land/Cliffton Skypark Airport, Newburg, MD	2W8	1,000
Buds Ferry Airport, Indian Head, MD	MD39	1,000
Burgess Field Airport, Riverside, MD	3W1	1,000
Chimney View Airport, Fredericksburg, VA	5VA5	1,000
Holly Springs Farm Airport, Nanjemoy, MD	MD55	1,000
Lanseair Farms Airport, La Plata, MD	MD97	1,000
Nyce Airport, Mount Victoria, MD	MD84	1,000
Parks Airpark Airport, Nanjemoy, MD	MD54	1,000
Pilots Cove Airport, Tompkinsville, MD	MD06	1,000
Quantico MCAF, Quantico, VA	NYG	1,000
Stewart Airport, St. Michaels, MD	MD64	1,000
U.S. Naval Weapons Center, Dahlgren Lab Airport, Dahlgren, VA	NDY	1,000

(25) Effective upon the establishment of the Washington Tri-Area Class B airspace area: Airports within a 30-nautical-mile radius of the Washington National Airport, Andrews Air Force Base Airport, Baltimore-Washington International Airport, and Dulles International Airport.

Airport name	Arpt ID	Alt. (AGL)
Albrecht Airstrip Airport, Long Green, MD	MD48	2,000
Armacost Farms Airport, Hampstead, MD	MD38	2,000
Barnes Airport, Lisbon, MD	MD47	2,000
Bay Bridge Airport, Stevensville, MD	W29	2,000
Carroll County Airport, Westminster, MD	W54	2,000
Castle Marina Airport, Chester, MD	OW6	2,000
Clearview Airpark Airport, Westminster, MD	2W2	2,000
Davis Airport, Laytonsville, MD	W50	2,000
Fallston Airport, Fallston, MD	W42	2,000
Faux-Burhans Airport, Frederick, MD	3MD0	2,000
Forest Hill Airport, Forest Hill, MD	MD31	2,000
Fort Detrick Helipad Heliport, Fort Detrick (Frederick), MD	MD32	2,000
Frederick Municipal Airport, Frederick, MD	FDK	2,000
Fremont Airport, Kemptown, MD	MD41	2,000
Good Neighbor Farm Airport, Unionville, MD	MD74	2,000
Happy Landings Farm Airport, Unionville, MD	MD73	2,000
Harris Airport, Still Pond, MD	MD69	2,000
Hybarc Farm Airport, Chestertown, MD	MD19	2,000
Kennersley Airport, Church Hill, MD	MD23	2,000
Kentmorr Airpark Airport, Stevensville, MD	3W3	2,000
Montgomery County Airpark Airport, Gaithersburg, MD	GAI	2,000
Phillips AAF, Aberdeen, MD	APG	2,000
Pond View Private Airport, Chestertown, MD	OMD4	2,000
Reservoir Airport, Finksburg, MD	1W8	2,000
Scheeler Field Airport, Chestertown, MD	OW7	2,000
Stolcrest STOL, Urbana, MD	MD75	2,000
Tinsely Airstrip Airport, Butler, MD	MD17	2,000
Walters Airport, Mount Airy, MD	OMD6	2,000

Waredaca Farm Airport, Brookeville, MD	MD16	2,000
Weide AAF, Edgewood Arsenal, MD	EDG	2,000
Woodbine Gliderport, Woodbine, MD	MD78	2,000
Wright Field Airport, Chestertown, MD	MD11	2,000
Aviacres Airport, Warrenton, VA	3VA2	1,500
Birch Hollow Airport, Hillsboro, VA	W60	1,500
Flying Circus Aerodrome Airport, Warrenton, VA	3VA3	1,500
Fox Acres Airport, Warrenton, VA	15VA	1,500
Hartwood Airport, Somerville, VA	8W8	1,500
Horse Feathers Airport, Midland, VA	53VA	1,500
Krens Farm Airport, Hillsboro, VA	14VA	1,500
Scott Airpark Airport, Lovettsville, VA	VA61	1,500
The Grass Patch Airport, Lovettsville, VA	VA62	1,500
Walnut Hill Airport, Calverton, VA	58VA	1,500
Warrenton Air Park Airport, Warrenton, VA	9W0	1,500
Warrenton-Fauquier Airport, Warrenton, VA	W66	1,500
Whitman Strip Airport, Manassas, VA	OV5	1,500
Aqua-Land/Cliffton Skypark Airport, Newburg, MD	2W8	1,000
Buds Ferry Airport, Indian Head, MD	MD39	1,000
Burgess Field Airport, Riverside, MD	3WI	1,000
Chimney View Airport, Fredericksburg, VA	5VA5	1,000
Holly Springs Farm Airport, Nanjemoy, MD	MD55	1,000
Lanseair Farms Airport, La Plata, MD	MD97	1,000
Nyce Airport, Mount Victoria, MD	MD84	1,000
Parks Airpark Airport, Nanjemoy, MD	MD54	1,000
Pilots Cove Airport, Tompkinsville, MD	MD06	1,000
Quantico MCAF, Quantico, VA	NYG	1,000
Stewart Airport, St. Michaels, MD	MD64	1,000
U.S. Naval Weapons Center, Dahlgren Lab Airport, Dahlgren, VA	NDY	1,000

Authority: 49 U.S.C. app. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514, 35 FR 4247, 3 CFR, 1966-1970 Comp., p. 902; 49 U.S.C. 106(g).

[Dkt. No. 26242, 55 FR 50307, Dec. 5, 1990; 56 FR 1229, Jan. 11, 1991, as amended by Amdt. 91-227, 56 FR 65652, Dec. 17, 1991; 57 FR 30822, July 10, 1992; 58 FR 48728, Sept. 17, 1993; 60 FR 8166, Feb. 10, 1995]

EFFECTIVE DATE NOTE: At 55 FR 50307, Dec. 5, 1990, SFAR No. 62 was added to part 91 effective December 5, 1990. SFAR No. 62 expires December 30, 1993.

#### Special Federal Aviation Regulation No. 64

##### Special Flight Authorizations for Noise Restricted Aircraft

1. Contrary provisions of part 91, subpart I notwithstanding, an operator of a civil subsonic turbojet airplane with maximum weight of more than 75,000 pounds may conduct an approved limited nonrevenue operation of that airplane to or from a U.S. airport when such operation has been authorized by the FAA under paragraph 2 of this SFAR; and

(a) The operator complies with all conditions and limitations established by this SFAR and the authorization;

(b) A copy of the authorization is carried aboard the airplane during all operations to or from a U.S. airport;

(c) The airplane carries an appropriate airworthiness certificate issued by the country of registration and meets the registration and identification

requirements of that country; and

(d) Whenever the application is for operation to a location at which FAA-approved noise abatement retrofit equipment is to be installed to make the aircraft comply with Stage 2 or Stage 3 noise levels as defined in part 36 of this chapter, the applicant must have a valid contract for such equipment.

2. Authorization for the operation of a Stage 1 or Stage 2 civil turbojet airplane to or from a U.S. airport may be issued by the FAA for the following purposes:

#### Stage 1 Airplanes

(a) For a Stage 1 airplane owned by a U.S. owner/applicant on and since November 4, 1990:

(i) Obtaining modifications necessary to meet Stage 2 noise levels as defined in part 36 of this chapter;

(ii) Obtaining modifications necessary to meet Stage 3 noise levels as defined in part 36 of this chapter; or

(iii) Scrapping the airplane, as deemed necessary by the FAA, to obtain spare parts to support U.S. programs for the national defense or safety.

(b) For a Stage 1 airplane owned by a non-U.S. owner/applicant:

(i) Obtaining modifications necessary to meet Stage 2 noise levels as defined in part 36 of this chapter;

(ii) Obtaining modifications necessary to meet Stage 3 noise levels as defined in part 36 of this chapter; or

(iii) Scrapping the airplane, as deemed necessary by the FAA, to obtain spare parts to support U.S. programs for the national defense or safety.

(c) For a Stage 1 airplane purchased by a U.S. owner/applicant on or after November 5, 1990:

(i) Obtaining modifications necessary to meet Stage 2 noise levels as defined in part 36 of this chapter, provided that the airplane does not subsequently operate in the contiguous United States;

(ii) Obtaining modifications necessary to meet Stage 3 noise levels as defined in part 36 of this chapter; or

(iii) Scrapping the airplane, as deemed necessary by the FAA, to obtain spare parts to support U.S. programs for the national defense or safety.

#### Stage 2 Airplanes

(d) For a Stage 2 airplane purchased by a U.S. owner/applicant on or after November 5, 1990, obtaining modification to meet Stage 3 noise levels as defined in part 36 of this chapter.

(e) For Stage 2 airplanes that were U.S.-owned on and since November 4, 1990, and that have been removed from service to achieve compliance with Sec. 91.865 or Sec. 91.867 of this part:

(i) Obtaining modifications to meet Stage 3 noise levels as defined in part 36 of this chapter;

(ii) Prior to January 1, 2000, exporting an airplane, including flying the airplane to or from any airport in the contiguous United States necessary for the exportation of that airplane; or

(iii) Prior to January 1, 2000, operating the airplane as deemed necessary by the FAA for the sale, lease, storage, or scrapping of the airplane.

3. An application for a special flight authorization under this Special Federal Aviation Regulation shall be submitted to the FAA, Director of the Office of Environment and Energy, received no less than five days prior to the requested flight, and include the following:

(a) The applicant's name and telephone number;

(b) The name of the airplane operator;

(c) The make, model, registration number, and serial number of the airplane;

(d) The reason why such authorization is necessary;

- (e) The purpose of the flight;
  - (f) Each U.S. airport at which the flight will be operated and the number of takeoffs and landings at each;
  - (g) The approximate dates of the flights;
  - (h) The number of people on board the airplane and the function of each person;
  - (i) Whether a special flight permit under FAR part 21.199 or a special flight authorization under FAR part 91.715 is required for the flight;
  - (j) A copy of the contract for noise abatement retrofit equipment, if appropriate; and
  - (k) Any other information or documentation requested by the Director, Office of Environment and Energy, as necessary to determine whether the application should be approved.
4. The Special Federal Aviation Regulation terminates on December 31, 1999, unless sooner rescinded or superseded.

[Dkt. No. 27314, Amdt. 91-232, 58 FR 31640, June 3, 1993; 58 FR 33189, June 16, 1993; 58 FR 62035, Nov. 24, 1993]

#### Special Federal Aviation Regulation No. 65-1

##### Prohibition Against Certain Flights Between the United States and Libya

1. Applicability. This Special Federal Aviation Regulation (SFAR) No. 65-1 applies to all aircraft operations originating from, landing in, or overflying the territory of the United States.
2. Special flight restrictions. Except as provided in paragraphs 3 and 4 of this SFAR No. 65-1--
  - (a) No person shall operate an aircraft on a flight to any point in Libya, or to any intermediate point on a flight where the ultimate destination is any point in Libya or that includes a landing at any point in Libya in its intended itinerary, from any point in the United States;
  - (b) No person shall operate an aircraft on a flight to any point in the United States from any point in Libya, or from any intermediate point on a flight where the origin is in Libya, or from any point on a flight which includes a departure from any point in Libya in its intended itinerary; or
  - (c) No person shall operate an aircraft over the territory of the United States if that aircraft's flight itinerary includes any landing at or departure from any point in Libya.
3. Permitted operations. This SFAR shall not prohibit the flight operations between the United States and Libya described in section 2 of this SFAR by an aircraft authorized to conduct such operations by the United States Government in consultation with the committee established by UN Security Council Resolution 748 (1992), as affirmed by UN Security Council Resolution 883 (1993).
4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR 121.557, 121.559, or 135.19, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations or the aircraft involved in the deviation, including a description of the deviation and the reasons therefor.
5. Duration. This SFAR No. 65-1 shall remain in effect until further notice.

Special Federal Aviation Regulation No. 66-2

Prohibition Against Certain Flights between the United States and the Federal Republic of Yugoslavia (Serbia and Montenegro)

1. Applicability. This Special Federal Aviation Regulation (SFAR) applies to all aircraft operations originating from, destined to land in, or overflying the territory of the United States.

2. Special flight restrictions. Except as provided in paragraphs 3 and 4 of this SFAR No. 66-2--

(a) No person shall operate an aircraft from any point in the United States to any point in the Federal Republic of Yugoslavia (Serbia and Montenegro) (hereinafter "Serbia and Montenegro"), a flight having any intermediate or ultimate destination in Serbia and Montenegro, or a flight that includes a landing at any point in Serbia and Montenegro in its intended itinerary;

(b) No person shall operate an aircraft to any point in the United States from any point in Serbia and Montenegro, or a flight from any intermediate point of departure where the origin of the flight is in Serbia and Montenegro, or a flight that includes a departure from any point in Serbia and Montenegro in its intended itinerary; or

(c) No person shall operate an aircraft over the territory of the United States if that aircraft's flight itinerary includes any landing at or departure from any point in Serbia and Montenegro.

3. Permitted operations. This SFAR shall not prohibit the flight operations between the United States, Serbia and Montenegro described in section 2 of this SFAR by an aircraft authorized to conduct such operations by the United States Government.

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Any deviation required by an emergency shall be reported as soon as possible to the air traffic control facility having jurisdiction.

5. Expiration. This Special Federal Aviation Regulation expires June 2, 1997.

Special Federal Aviation Regulation No. 67

Prohibition Against Certain Flights Within the Territory and Airspace of Afghanistan

1. Applicability. This rule applies to all U.S. air carriers and commercial operators, all persons exercising the privileges of an airman certificate issued by the FAA, and all operators using aircraft registered in the United States except where the operator of such aircraft is a foreign air carrier.

2. Flight prohibition. Except as provided in paragraph 3 and 4 of this SFAR, no person described in paragraph 1 may conduct flight operations within the territory and airspace of Afghanistan.

3. Permitted operations. This SFAR does not prohibit persons described in paragraph 1 from conducting flight operations within the territory and airspace of Afghanistan where such operations are authorized either by exemption issued by the Administrator or by another agency of the United States Government with the approval of the FAA.

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR 121.557, 121.559, or 135.19, each person who deviates

from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons therefor.

5. Expiration. This Special Federal Aviation Regulation remains in effect until May 10, 2000.

[Doc. No. 27744, 59 FR 25283, May 13, 1994, as amended at 61 FR 24431, May 14, 1996; Doc. No. 27744, 62 FR 26892, May 15, 1997; 63 FR 26686, May 11, 1998; 63 FR 45659, Aug. 26, 1998]

## Special Federal Aviation Regulation No.71

### Special Operating Rules for Air Tour Operators in the State of Hawaii

Section 1. Applicability. This Special Federal Aviation Regulation prescribes operating rules for airplane and helicopter visual flight rules air tour flights conducted in the State of Hawaii under 14 CFR parts 91, 121, and 135. This rule does not apply to:

(a) Operations conducted under 14 CFR part 121 in airplanes with a passenger seating configuration of more than 30 seats or a payload capacity of more than 7,500 pounds.

(b) Flights conducted in gliders or hot air balloons.

Section 2. Definitions. For the purposes of this SFAR:

``Air tour'' means any sightseeing flight conducted under visual flight rules in an airplane or helicopter for compensation or hire.

``Air tour operator'' means any person who conducts an air tour.

Section 3. Helicopter flotation equipment. No person may conduct an air tour in Hawaii in a single-engine helicopter beyond the shore of any island, regardless of whether the helicopter is within gliding distance of the shore, unless:

(a) The helicopter is amphibious or is equipped with floats adequate to accomplish a safe emergency ditching and approved flotation gear is easily accessible for each occupant; or

(b) Each person on board the helicopter is wearing approved flotation gear.

Section 4. Helicopter performance plan. Each operator must complete a performance plan before each helicopter air tour flight. The performance plan must be based on the information in the Rotorcraft Flight Manual (RFM), considering the maximum density altitude for which the operation is planned for the flight to determine the following:

(a) Maximum gross weight and center of gravity (CG) limitations for hovering in ground effect;

(b) Maximum gross weight and CG limitations for hovering out of ground effect; and,

(c) Maximum combination of weight, altitude, and temperature for which height-velocity information in the RFM. is valid.

The pilot in command (PIC) must comply with the performance plan.

Section 5. Helicopter operating limitations. Except for approach to and transition from a hover, the PIC shall operate the helicopter at a combination of height and forward speed (including hover) that would permit a safe landing in event of engine power loss, in accordance with the height-speed envelope for that helicopter under current weight and aircraft altitude.

Section 6. Minimum flight altitudes. Except when necessary for takeoff and landing, or operating in compliance with an air traffic control clearance, or as otherwise authorized by the Administrator, no

person may conduct an air tour in Hawaii:

(a) Below an altitude of 1,500 feet above the surface over all areas of the State of Hawaii, and,

(b) Closer than 1,500 feet to any person or property; or,

(c) Below any altitude prescribed by federal statute or regulation.

Section 7. Passenger briefing. Before takeoff, each PIC of an air tour flight of Hawaii with a flight segment beyond the ocean shore of any island shall ensure that each passenger has been briefed on the following, in addition to requirements set forth in 14 CFR 91.107, 121.571, or 135.117:

(a) Water ditching procedures;

(b) Use of required flotation equipment; and

(c) Emergency egress from the aircraft in event of a water landing.'

Section 8. Termination date. This Special Federal Aviation Regulation expires on October 26, 2000.

[SFAR 71, 59 FR 49145, Sept. 26, 1994, as amended at 60 FR 65913, Dec. 20, 1995; 62 FR 58859, Oct. 30, 1997]

#### Special Federal Aviation Regulation No. 77

#### Prohibition Against Certain Flights Within the Territory and Airspace of Iraq

1. Applicability. This rule applies to the following persons:

(a) All U.S. air carriers or commercial operators;

(b) All persons exercising the privileges of an airman certificate issued by the FAA except such persons operating U.S.-registered aircraft for a foreign air carrier; or

(c) All operators of aircraft registered in the United States except where the operator of such aircraft is a foreign air carrier.

2. Flight prohibition. Except as provided in paragraphs 3 and 4 of this SFAR, no person described in paragraph 1 may conduct flight operations over or within the territory and airspace of Iraq.

3. Permitted operations. This SFAR does not prohibit persons described in paragraph 1 from conducting flight operations over or within the territory and airspace of Iraq where such operations are authorized either by exemption issued by the Administrator or by another agency of the United States Government.

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers or commercial operators that are subject to the requirements of 14 CFR parts 119, 121, or 135, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation including a description of the deviation and the reasons therefore.

5. Expiration. This Special Federal Aviation Regulation will remain in effect until further notice.

[61 FR 54021, Oct. 16, 1996]

#### Special Federal Aviation Regulation (SFAR) No. 78

#### Special Operating Rules for Commercial Air Tour Operators in the Vicinity of the Rocky Mountain National Park

Section 1. Applicability. This Special Federal Aviation Regulation prescribes operating rules for commercial air tour flight operations within the lateral boundaries of the Rocky Mountain National Park, CO.

Section 2. Definition. For the purpose of this SFAR: "commercial air tour" means: the operation of an aircraft carrying passengers for compensation or hire for aerial sightseeing.

Section 3. Restriction. No person may conduct a commercial air tour operation in the airspace over Rocky Mountain National Park, CO.

Expiration: This SFAR will expire on the adoption of a final rule in Docket No. 27643.

[Amdt. 91-254, 62 FR 1205, Jan. 8, 1997]

#### Special Federal Aviation Regulation (SFAR) No. 79

Prohibition Against Certain Flights Within the Flight Information Region (FIR) of the Democratic People's Republic of Korea (DPRK).

1. Applicability. This rule applies to the following persons:

(a) All U.S. air carriers or commercial operators.

(b) All persons exercising the privileges of an airman certificate issued by the FAA, except such persons operating U.S.-registered aircraft for a foreign air carrier.

(c) All operators of aircraft registered in the United States except where the operator of such aircraft is a foreign air carrier.

2. Flight Prohibition. (a) Except as provided in paragraphs 2(b), 3, and 4 of this SFAR, no person described in paragraph 1 may conduct flight operations through the Pyongyang FIR.

(b) Flight operations within the Pyongyang FIR east of 132 degrees east longitude are prohibited until the FAA determines, based on information from the DPRK civil aviation authority, that the proper level of operational overflight safety can be assured. The FAA will amend this SFAR and publish a notice to airmen (NOTAM) to permit flights east of 132 degrees east longitude once this determination is made.

3. Permitted operations. This SFAR does not prohibit persons described in paragraph 1 from conducting flight operations within the Pyongyang FIR where such operations are authorized either by exemption issued by the Administrator or by another agency of the United States Government with FAA approval.

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command on an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR parts 121, 125, or 135, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons therefore.

5. Expiration. This Special Federal Aviation Regulation No. 79 will remain in effect until further notice.

[62 FR 20078, Apr. 24, 1997]

Prohibition Against Certain Flights Within the Territory and Airspace of Sudan

[Removed, 64 FR 66096, 11/24/99]

Special Federal Aviation Regulation No. 84

Prohibition Against Certain Flights Within the Territory and Airspace of  
Serbia-Montenegro

1. Applicability. This rule applies to all U.S. air carriers and commercial operators, all persons exercising the privileges of an airman certificate issued by the FAA unless that person is engaged in the operation of a U.S.-registered aircraft for a foreign air carrier, and all operators using aircraft registered in the United States except where the operator of such aircraft is a foreign air carrier.

2. Flight prohibition. Except as provided in paragraph 3 and 4 of this SFAR, no person described in paragraph 1 may conduct flight operations within the territory and airspace of Serbia-Montenegro.

3. Permitted operations. This SFAR does not prohibit persons described in paragraph 1 from conducting flight operations within the territory and airspace of Serbia-Montenegro where such operations are authorized either by exemption issued by the Administrator or by another agency of the United States Government with the approval of the FAA.

4. Emergency situations. In an emergency that requires immediate decision and action for the safety of the flight, the pilot in command of an aircraft may deviate from this SFAR to the extent required by that emergency. Except for U.S. air carriers and commercial operators that are subject to the requirements of 14 CFR 121.557, 121.559, or 135.19, each person who deviates from this rule shall, within ten (10) days of the deviation, excluding Saturdays, Sundays, and Federal holidays, submit to the nearest FAA Flight Standards District Office a complete report of the operations of the aircraft involved in the deviation, including a description of the deviation and the reasons therefore.

5. Expiration. This Special Federal Aviation Regulation shall remain in effect until further notice.

Special Federal Aviation Regulation No. 86

Airspace and Flight Operations Requirements for the 1999 and  
2000 Kodak Albuquerque International Balloon Fiestas, Albuquerque, NM

1. General. (a) Each person shall be familiar with all NOTAMS issued pursuant to this SFAR and all other available information concerning that operation before conducting any operation into or out of an airport or area specified in this SFAR or in NOTAMS pursuant to this SFAR. In addition, each person operating an international flight that will enter the U.S. shall be familiar with any international NOTAMS issued pursuant to this SFAR. NOTAMS are available for inspection at operating FAA air traffic facilities and regional air traffic division offices.

(b) Notwithstanding any provision of the Title 14, Code of Federal Regulations, no person may operate an aircraft contrary to any restriction procedure specified in this SFAR or by the Administrator, or through a NOTAM issued pursuant to this SFAR.

(c) As conditions warrant, the Administrator is authorized to--

(1) Restrict, prohibit, or permit IFR/VFR operations in the temporary flight restricted area designated in this SFAR or in a NOTAM issued pursuant

to this SFAR;

(2) Give priority to or exclude the following flights from provisions of this SFAR and NOTAMs issued pursuant to this SFAR:

- (i) Essential military.
- (ii) Medical and rescue.
- (iii) Presidential and Vice Presidential.
- (iv) Flights carrying visiting heads of state.
- (v) Law enforcement and security.
- (vi) Flights authorized by the Director, Air Traffic Service.

(d) For security purposes, the Administrator may issue NOTAMs during the effective period of this SFAR to cancel or modify provisions of this SFAR and NOTAMs issued pursuant to this SFAR if such action is consistent with the safe and efficient use of airspace and the safety and security of persons and property on the ground as affected by air traffic.

2. Temporary Flight Restriction. At the following location, flight is restricted during the indicated dates and times: That airspace within a 4 NM radius centered on the Albuquerque VORTAC 038 deg. radial 14 DME fix from the surface up to but not including 8,000 feet MSL unless otherwise authorized by Albuquerque ATCT.

3. Dates and Times of Designation. (a) October 2 through October 10, 1999, and October 7 through October 15, 2000, from 0530 MDT until 1200 MDT.

(b) October 2 through October 10, 1999, and October 7 through October 15, 2000, from 1600 MDT until 2200 MDT.

4. Expiration. This Special Federal Aviation Regulation expires on October 16, 2000.

## Federal Aviation Regulation part 91

### Subpart A--General

#### Sec. 91.1 Applicability.

(a) Except as provided in paragraphs (b) and (c) of this section and Secs. 91.701 and 91.703, this part prescribes rules governing the operation of aircraft (other than moored balloons, kites, unmanned rockets, and unmanned free balloons, which are governed by part 101 of this chapter, and ultralight vehicles operated in accordance with part 103 of this chapter) within the United States, including the waters within 3 nautical miles of the U.S. coast.

(b) Each person operating an aircraft in the airspace overlying the waters between 3 and 12 nautical miles from the coast of the United States shall comply with Secs. 91.1 through 91.21; Secs. 91.101 through 91.143; Secs. 91.151 through 91.159; Secs. 91.167 through 91.193; Sec. 91.203; Sec. 91.205; Secs. 91.209 through 91.217; Sec. 91.221; Secs. 91.303 through 91.319; Sec. 91.323; Sec. 91.605; Sec. 91.609; Secs. 91.703 through 91.715; and 91.903.

(c) This part applies to each person on board an aircraft being operated under this part, unless otherwise specified.

[Amdt. 91-211, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-257, 64 FR 1079, Jan. 7, 1999; 64 FR 7066, Feb. 12, 1999]

Sec. 91.3 Responsibility and authority of the pilot in command.

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.3 was revised effective August 18, 1990, as set out above.

Sec. 91.5 Pilot in command of aircraft requiring more than one required pilot.

No person may operate an aircraft that is type certificated for more than one required pilot flight crewmember unless the pilot in command meets the requirements of Sec. 61.58 of this chapter.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.5 was revised effective August 18, 1990, as set out above.

Sec. 91.7 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.7 was revised effective August 18, 1990, as set out above.

Sec. 91.9 Civil aircraft flight manual, marking, and placard requirements.

(a) Except as provided in paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and

placards, or as otherwise prescribed by the certificating authority of the country of registry.

(b) No person may operate a U.S.-registered civil aircraft--

(1) For which an Airplane or Rotorcraft Flight Manual is required by Sec. 21.5 of this chapter unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in Sec. 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by Sec. 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

(c) No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with part 45 of this chapter.

(d) Any person taking off or landing a helicopter certificated under part 29 of this chapter at a heliport constructed over water may make such momentary flight as is necessary for takeoff or landing through the prohibited range of the limiting height-speed envelope established for the helicopter if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished and if the helicopter is amphibious or is equipped with floats or other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.9 was revised effective August 18, 1990, as set out above.

#### Sec. 91.11 Prohibition on interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

[Amdt. 91-211, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-257, 64 FR 1079, Jan. 7, 1999; 64 FR 7066, Feb. 12, 1999]

#### Sec. 91.13 Careless or reckless operation.

(a) Aircraft operations for the purpose of air navigation. No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

(b) Aircraft operations other than for the purpose of air navigation. No person may operate an aircraft, other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger the life or property of another.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.13 was revised effective August 18, 1990, as set out above.

Sec. 91.15 Dropping objects.

No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.15 was revised effective August 18, 1990, as set out above.

Sec. 91.17 Alcohol or drugs.

(a) No person may act or attempt to act as a crewmember of a civil aircraft--

- (1) Within 8 hours after the consumption of any alcoholic beverage;
- (2) While under the influence of alcohol;
- (3) While using any drug that affects the person's faculties in any way contrary to safety; or
- (4) While having .04 percent by weight or more alcohol in the blood.

(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.

(c) A crewmember shall do the following:

(1) On request of a law enforcement officer, submit to a test to indicate the percentage by weight of alcohol in the blood, when--

(i) The law enforcement officer is authorized under State or local law to conduct the test or to have the test conducted; and

(ii) The law enforcement officer is requesting submission to the test to investigate a suspected violation of State or local law governing the same or substantially similar conduct prohibited by paragraph (a) (1), (a) (2), or (a) (4) of this section.

(2) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (1), (a) (2), or (a) (4) of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates percentage by weight of alcohol in the blood.

(d) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (3) of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.

(e) Any test information obtained by the Administrator under paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of this chapter and may be used as evidence in any legal proceeding under section 602, 609, or 901 of the Federal Aviation Act of 1958.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.17 was revised effective August 18, 1990, as set out above.

Sec. 91.19 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the United States with knowledge that narcotic drugs, marihuana, and depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances authorized by or under any Federal or State statute or by any Federal or State agency.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.19 was revised effective August 18, 1990, as set out above.

Sec. 91.21 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any of the following U.S.-registered civil aircraft:

(1) Aircraft operated by a holder of an air carrier operating certificate or an operating certificate; or

(2) Any other aircraft while it is operated under IFR.

(b) Paragraph (a) of this section does not apply to--

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers; or

(5) Any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) In the case of an aircraft operated by a holder of an air carrier operating certificate or an operating certificate, the determination required by paragraph (b)(5) of this section shall be made by that operator of the aircraft on which the particular device is to be used. In the case of other aircraft, the determination may be made by the pilot in command or other operator of the aircraft.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.21 was revised effective August 18, 1990, as set out above.

Sec. 91.23 Truth-in-leasing clause requirement in leases and conditional sales contracts.

(a) Except as provided in paragraph (b) of this section, the parties to a lease or contract of conditional sale involving a U.S.-registered large civil aircraft and entered into after January 2, 1973, shall execute a written lease or contract and include therein a written truth-in-leasing clause as a concluding paragraph in large print, immediately preceding the space for the signature of the parties, which contains the following with respect to each such aircraft:

(1) Identification of the Federal Aviation Regulations under which the aircraft has been maintained and inspected during the 12 months preceding the execution of the lease or contract of conditional sale, and certification by the parties thereto regarding the aircraft's status of compliance with applicable maintenance and inspection requirements in this part for the operation to be conducted under the lease or contract of conditional sale.

(2) The name and address (printed or typed) and the signature of the person responsible for operational control of the aircraft under the lease or contract of conditional sale, and certification that each person understands that person's responsibilities for compliance with applicable Federal Aviation Regulations.

(3) A statement that an explanation of factors bearing on operational control and pertinent Federal Aviation Regulations can be obtained from the nearest FAA Flight Standards district office.

(b) The requirements of paragraph (a) of this section do not apply--

(1) To a lease or contract of conditional sale when--

(i) The party to whom the aircraft is furnished is a foreign air carrier or certificate holder under part 121, 125, 127, 135, or 141 of this chapter, or

(ii) The party furnishing the aircraft is a foreign air carrier or a person operating under part 121, 125, and 141 of this chapter, or a person operating under part 135 of this chapter having authority to engage in on-demand operations with large aircraft.

(2) To a contract of conditional sale, when the aircraft involved has not been registered anywhere prior to the execution of the contract, except as a new aircraft under a dealer's aircraft registration certificate issued in accordance with Sec. 47.61 of this chapter.

(c) No person may operate a large civil aircraft of U.S. registry that is subject to a lease or contract of conditional sale to which paragraph (a) of this section applies, unless--

(1) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has mailed a copy of the lease or contract that complies with the requirements of paragraph (a) of this section, within 24 hours of its execution, to the Aircraft Registration Branch, Attn: Technical Section, P.O. Box 25724, Oklahoma City, Oklahoma 73125;

(2) A copy of the lease or contract that complies with the requirements of paragraph (a) of this section is carried in the aircraft. The copy of the lease or contract shall be made available for review upon request by the Administrator, and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has notified by telephone or in person the FAA Flight Standards district office nearest the airport where the flight will originate. Unless otherwise authorized by that office, the notification shall be given at least 48 hours before takeoff in the case of the first flight of that aircraft under that lease or contract and inform the FAA of--

(i) The location of the airport of departure;

(ii) The departure time; and

(iii) The registration number of the aircraft involved.

(d) The copy of the lease or contract furnished to the FAA under paragraph (c) of this section is commercial or financial information obtained from a

person. It is, therefore, privileged and confidential and will not be made available by the FAA for public inspection or copying under 5 U.S.C. 552(b)(4) unless recorded with the FAA under part 49 of this chapter.

(e) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person for compensation or hire, whether with or without flight crewmembers, other than an agreement for the sale of an aircraft and a contract of conditional sale under section 101 of the Federal Aviation Act of 1958. The person furnishing the aircraft is referred to as the lessor, and the person to whom it is furnished the lessee.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

[Amdt. 91-211, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989; Amdt. 91-253, 62 FR 13253, Mar. 19, 1997]

Sec. 91.25 Aviation Safety Reporting Program: Prohibition against use of reports for enforcement purposes.

The Administrator of the FAA will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived therefrom) in any enforcement action except information concerning accidents or criminal offenses which are wholly excluded from the Program.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.25 was revised effective August 18, 1990, as set out above.

Secs. 91.27--91.99 [Reserved]

## Subpart B--Flight Rules

### General

Sec. 91.101 Applicability.

This subpart prescribes flight rules governing the operation of aircraft within the United States and within 12 nautical miles from the coast of the United States.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.101 was revised effective August 18, 1990, as set out above.

#### Sec. 91.103 Preflight action.

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include--

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in paragraph (b) (1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.103 was revised effective August 18, 1990, as set out above.

#### Sec. 91.105 Flight crewmembers at stations.

(a) During takeoff and landing, and while en route, each required flight crewmember shall--

(1) Be at the crewmember station unless the absence is necessary to perform duties in connection with the operation of the aircraft or in connection with physiological needs; and

(2) Keep the safety belt fastened while at the crewmember station.

(b) Each required flight crewmember of a U.S.-registered civil aircraft shall, during takeoff and landing, keep his or her shoulder harness fastened while at his or her assigned duty station. This paragraph does not apply if--

(1) The seat at the crewmember's station is not equipped with a shoulder harness; or

(2) The crewmember would be unable to perform required duties with the shoulder harness fastened.

[Amdt. 91-211, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-231, 57 FR 42671, Sept. 15, 1992]

Sec. 91.107 Use of safety belts, shoulder harnesses, and child restraint systems.

(a) Unless otherwise authorized by the Administrator--

(1) No pilot may take off a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, shoulder harness.

(2) No pilot may cause to be moved on the surface, take off, or land a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness.

(3) Except as provided in this paragraph, each person on board a U.S.-registered civil aircraft (except a free balloon that incorporates a basket or gondola or an airship type certificated before November 2, 1987) must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him or her during movement on the surface, takeoff, and landing. For seaplane and float equipped rotorcraft operations during movement on the surface, the person pushing off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt requirements. Notwithstanding the preceding requirements of this paragraph, a person may:

(i) Be held by an adult who is occupying an approved seat or berth, provided that the person being held has not reached his or her second birthday and does not occupy or use any restraining device;

(ii) Use the floor of the aircraft as a seat, provided that the person is on board for the purpose of engaging in sport parachuting; or

(iii) Notwithstanding any other requirement of this chapter, occupy an approved child restraint system furnished by the operator or one of the persons described in paragraph (a) (3) (iii) (A) of this section provided that:

(A) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to attend to the safety of the child during the flight;

(B) Except as provided in paragraph (a) (3) (iii) (B) (4) of this section, the approved child restraint system bears one or more labels as follows:

(1) Seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable Federal motor vehicle safety standards.";

(2) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels:

(i) "This child restraint system conforms to all applicable Federal motor vehicle safety standards"; and

(ii) "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND AIRCRAFT" in red lettering;

(3) Seats that do not qualify under paragraphs (a) (3) (iii) (B) (1) and (a) (3) (iii) (B) (2) of this section must bear either a label showing approval of a foreign government or a label showing that the seat was manufactured under the standards of the United Nations;

(4) Notwithstanding any other provision of this section, booster-type child restraint systems (as defined in Federal Motor Vehicle Safety Standard No. 213 (49 CFR 571.213)), vest- and harness-type child restraint systems, and lap held child restraints are not approved for use in aircraft; and

(C) The operator complies with the following requirements:

(1) The restraint system must be properly secured to an approved forward-facing seat or berth;

(2) The child must be properly secured in the restraint system and must not

exceed the specified weight limit for the restraint system; and

(3) The restraint system must bear the appropriate label(s).

(b) Unless otherwise stated, this section does not apply to operations conducted under part 121, 125, or 135 of this chapter. Paragraph (a) (3) of this section does not apply to persons subject to Sec. 91.105.

[Amdt. 91-231, 57 FR 42671, Sept. 15, 1992, as amended by Amdt. 91-250, 61 FR 28421, June 4, 1996]

Sec. 91.109 Flight instruction; Simulated instrument flight and certain flight tests.

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in a single-engine airplane equipped with a single, functioning throwover control wheel in place of fixed, dual controls of the elevator and ailerons when--

(1) The instructor has determined that the flight can be conducted safely; and

(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(b) No person may operate a civil aircraft in simulated instrument flight unless--

(1) The other control seat is occupied by a safety pilot who possesses at least a private pilot certificate with category and class ratings appropriate to the aircraft being flown.

(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot; and

(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single-engine airplane, equipped with a single, functioning, throwover control wheel, in place of fixed, dual controls of the elevator and ailerons, when--

(i) The safety pilot has determined that the flight can be conducted safely; and

(ii) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(c) No person may operate a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a part 121 proficiency flight test, unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.109 was revised effective August 18, 1990, as set out above.

Sec. 91.111 Operating near other aircraft.

(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.111 was added effective August 18, 1990.

#### Sec. 91.113 Right-of-way rules: Except water operations.

(a) Inapplicability. This section does not apply to the operation of an aircraft on water.

(b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(c) In distress. An aircraft in distress has the right-of-way over all other air traffic.

(d) Converging. When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. If the aircraft are of different categories--

(1) A balloon has the right-of-way over any other category of aircraft;

(2) A glider has the right-of-way over an airship, airplane, or rotorcraft; and

(3) An airship has the right-of-way over an airplane or rotorcraft.

However, an aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft.

(e) Approaching head-on. When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(f) Overtaking. Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) Landing. Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.113 was added effective August 18, 1990.

#### Sec. 91.115 Right-of-way rules: Water operations.

(a) General. Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way by any rule of this section.

(b) Crossing. When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right-of-way.

(c) Approaching head-on. When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.

(d) Overtaking. Each aircraft or vessel that is being overtaken has the right-of-way, and the one overtaking shall alter course to keep well clear.

(e) Special circumstances. When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.115 was revised effective August 18, 1990, as set out above.

#### Sec. 91.117 Aircraft speed.

(a) Unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 m.p.h.).

(b) Unless otherwise authorized or required by ATC, no person may operate an aircraft at or below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class C or Class D airspace area at an indicated airspeed of more than 200 knots (230 mph). This paragraph (b) does not apply to any operations within a Class B airspace area. Such operations shall comply with paragraph (a) of this section.

(c) No person may operate an aircraft in the airspace underlying a Class B airspace area designated for an airport or in a VFR corridor designated through such a Class B airspace area, at an indicated airspeed of more than 200 knots (230 mph).

(d) If the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

[Doc. No. 18334, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. No. 91-219, 55 FR 34708, Aug. 24, 1990; Amdt. 91-227, 56 FR 65657, Dec. 17, 1991; 58 FR 32839, June 14, 1993; Amdt. 91-233, 58 FR 43554, Aug. 17, 1993]

#### Sec. 91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000

feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) Helicopters. Helicopters may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with any routes or altitudes specifically prescribed for helicopters by the Administrator.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.119 was revised effective August 18, 1990, as set out above.

#### Sec. 91.121 Altimeter settings.

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating--

(1) Below 18,000 feet MSL, to--

(i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

(ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or

(iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or

(2) At or above 18,000 feet MSL, to 29.92'' Hg.

(b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation as shown in the following table:

Current altimeter setting	Lowest usable flight level
29.92 (or higher)	180
29.91 through 29.42	185
29.41 through 28.92	190
28.91 through 28.42	195
28.41 through 27.92	200
27.91 through 27.42	205
27.41 through 26.92	210

(c) To convert minimum altitude prescribed under Secs. 91.119 and 91.177 to the minimum flight level, the pilot shall take the flight level equivalent of the minimum altitude in feet and add the appropriate number of feet specified below, according to the current reported altimeter setting:

Current altimeter setting	Adjustment factor
29.92 (or higher)	None

29.91 through 29.42	500
29.41 through 28.92	1,000
28.91 through 28.42	1,500
28.41 through 27.92	2,000
27.91 through 27.42	2,500
27.41 through 26.92	3,000

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.121 was revised effective August 18, 1990, as set out above.

#### Sec. 91.123 Compliance with ATC clearances and instructions.

(a) When an ATC clearance has been obtained, no pilot in command may deviate from that clearance unless an amended clearance is obtained, an emergency exists, or the deviation is in response to a traffic alert and collision avoidance system resolution advisory. However, except in Class A airspace, a pilot may cancel an IFR flight plan if the operation is being conducted in VFR weather conditions. When a pilot is uncertain of an ATC clearance, that pilot shall immediately request clarification from ATC.

(b) Except in an emergency, no person may operate an aircraft contrary to an ATC instruction in an area in which air traffic control is exercised.

(c) Each pilot in command who, in an emergency, or in response to a traffic alert and collision avoidance system resolution advisory, deviates from an ATC clearance or instruction shall notify ATC of that deviation as soon as possible.

(d) Each pilot in command who (though not deviating from a rule of this subpart) is given priority by ATC in an emergency, shall submit a detailed report of that emergency within 48 hours to the manager of that ATC facility, if requested by ATC.

(e) Unless otherwise authorized by ATC, no person operating an aircraft may operate that aircraft according to any clearance or instruction that has been issued to the pilot of another aircraft for radar air traffic control purposes.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

[54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65658, Dec. 17, 1991; Amdt. 91-244, 60 FR 50679, Sept. 29, 1995]

#### Sec. 91.125 ATC light signals.

ATC light signals have the meaning shown in the following table:

Color and type of signal	Meaning with respect to aircraft on the surface	Meaning with respect to aircraft in flight
Steady green	Cleared for takeoff	Cleared to land.
Flashing green	Cleared to taxi	Return for landing (to be followed by steady green at proper time).

Steady red	Stop	Give way to other aircraft and continue circling.
Flashing red	Taxi clear of runway in use	Airport unsafe--do not land.
Flashing white	Return to starting point on airport	Not applicable.
Alternating red and green	Exercise extreme caution	Exercise extreme caution.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.125 was revised effective August 18, 1990, as set out above.

Sec. 91.126 Operating on or in the vicinity of an airport in Class G airspace.

(a) General. Unless otherwise authorized or required, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) Direction of turns. When approaching to land at an airport without an operating control tower in Class G airspace--

(1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right; and

(2) Each pilot of a helicopter must avoid the flow of fixed-wing aircraft.

(c) Flap settings. Except when necessary for training or certification, the pilot in command of a civil turbojet-powered aircraft must use, as a final flap setting, the minimum certificated landing flap setting set forth in the approved performance information in the Airplane Flight Manual for the applicable conditions. However, each pilot in command has the final authority and responsibility for the safe operation of the pilot's airplane, and may use a different flap setting for that airplane if the pilot determines that it is necessary in the interest of safety.

(d) Communications with control towers. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Sec. 91.185.

[Amdt. 91-227, 56 FR 65659, Dec. 17, 1991, as amended by Amdt. 91-239, 59 FR 11693, Mar. 11, 1994]

Sec. 91.127 Operating on or in the vicinity of an airport in Class E airspace.

(a) Unless otherwise required by part 93 of this chapter or unless otherwise authorized or required by the ATC facility having jurisdiction over the Class E airspace area, each person operating an aircraft on or in the vicinity of an airport in a Class E airspace area must comply with the requirements of Sec. 91.126.

(b) Departures. Each pilot of an aircraft must comply with any traffic patterns established for that airport in part 93 of this chapter.

(c) Communications with control towers. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Sec. 91.185.

[Amdt. 91-227, 56 FR 65659, Dec. 17, 1991, as amended by Amdt. 91-239, 59 FR 11693, Mar. 11, 1994]

#### Sec. 91.129 Operations in Class D airspace.

(a) General. Unless otherwise authorized or required by the ATC facility having jurisdiction over the Class D airspace area, each person operating an aircraft in Class D airspace must comply with the applicable provisions of this section. In addition, each person must comply with Secs. 91.126 and 91.127. For the purpose of this section, the primary airport is the airport for which the Class D airspace area is designated. A satellite airport is any other airport within the Class D airspace area.

(b) Deviations. An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

(c) Communications. Each person operating an aircraft in Class D airspace must meet the following two-way radio communications requirements:

(1) Arrival or through flight. Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in the United States) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.

(2) Departing flight. Each person--

(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class D airspace area; or

(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class D airspace area as soon as practicable after departing.

(d) Communications failure. Each person who operates an aircraft in a Class D airspace area must maintain two-way radio communications with the ATC facility having jurisdiction over that area.

(1) If the aircraft radio fails in flight under IFR, the pilot must comply with Sec. 91.185 of the part.

(2) If the aircraft radio fails in flight under VFR, the pilot in command may operate that aircraft and land if--

- (i) Weather conditions are at or above basic VFR weather minimums;
- (ii) Visual contact with the tower is maintained; and
- (iii) A clearance to land is received.

(e) Minimum Altitudes. When operating to an airport in Class D airspace, each pilot of--

(1) A large or turbine-powered airplane shall, unless otherwise required by the applicable distance from cloud criteria, enter the traffic pattern at an altitude of at least 1,500 feet above the elevation of the airport and maintain at least 1,500 feet until further descent is required for a safe landing;

(2) A large or turbine-powered airplane approaching to land on a runway served by an instrument landing system (ILS), if the airplane is ILS equipped, shall fly that airplane at an altitude at or above the glide slope between the outer marker (or point of interception of glide slope, if compliance with the applicable distance from clouds criteria requires interception closer in) and the middle marker; and

(3) An airplane approaching to land on a runway served by a visual approach slope indicator shall maintain an altitude at or above the glide slope until a lower altitude is necessary for safe landing.

Paragraphs (e) (2) and (e) (3) of this section do not prohibit normal bracketing maneuvers above or below the glide slope that are conducted for the purpose of remaining on the glide slope.

(f) Approaches. Except when conducting a circling approach under Part 97 of this chapter or unless otherwise required by ATC, each pilot must--

- (1) Circle the airport to the left, if operating an airplane; or
- (2) Avoid the flow of fixed-wing aircraft, if operating a helicopter.

(g) Departures. No person may operate an aircraft departing from an airport except in compliance with the following:

(1) Each pilot must comply with any departure procedures established for that airport by the FAA.

(2) Unless otherwise required by the prescribed departure procedure for that airport or the applicable distance from clouds criteria, each pilot of a turbine-powered airplane and each pilot of a large airplane must climb to an altitude of 1,500 feet above the surface as rapidly as practicable.

(h) Noise abatement. Where a formal runway use program has been established by the FAA, each pilot of a large or turbine-powered airplane assigned a noise abatement runway by ATC must use that runway. However, consistent with the final authority of the pilot in command concerning the safe operation of the aircraft as prescribed in Sec. 91.3(a), ATC may assign a different runway if requested by the pilot in the interest of safety.

(i) Takeoff, landing, taxi clearance. No person may, at any airport with an operating control tower, operate an aircraft on a runway or taxiway, or take off or land an aircraft, unless an appropriate clearance is received from ATC. A clearance to "taxi to" the takeoff runway assigned to the aircraft is not a clearance to cross that assigned takeoff runway, or to taxi on that runway at any point, but is a clearance to cross other runways that intersect the taxi route to that assigned takeoff runway. A clearance to "taxi to" any point other than an assigned takeoff runway is clearance to cross all runways that intersect the taxi route to that point.

[Amdt. 91-227, 56 FR 65658, Dec. 17, 1991, as amended by Amdt. 91-234, 58 FR 48793, Sept. 20, 1993]

Sec. 91.130 Operations in Class C airspace.

(a) General. Unless otherwise authorized by ATC, each aircraft operation in Class C airspace must be conducted in compliance with this section and Sec. 91.129. For the purpose of this section, the primary airport is the airport for which the Class C airspace area is designated. A satellite airport is any other airport within the Class C airspace area.

(b) Traffic patterns. No person may take off or land an aircraft at a satellite airport within a Class C airspace area except in compliance with FAA arrival and departure traffic patterns.

(c) Communications. Each person operating an aircraft in Class C airspace must meet the following two-way radio communications requirements:

(1) Arrival or through flight. Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in the United States) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.

(2) Departing flight. Each person--

(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class C airspace area; or

(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class C airspace area as soon as practicable after departing.

(d) Equipment requirements. Unless otherwise authorized by the ATC having jurisdiction over the Class C airspace area, no person may operate an aircraft within a Class C airspace area designated for an airport unless that aircraft is equipped with the applicable equipment specified in Sec. 91.215.

(e) Deviations. An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

[Amdt. 91-227, 56 FR 65659, Dec. 17, 1991; Amdt. 91-232, 58 FR 40736, July 30, 1993; 58 FR 42643, Aug. 11, 1993, as amended by Amdt. 91-239, 59 FR 11693, Mar. 11, 1994]

Sec. 91.131 Operations in Class B airspace.

(a) Operating rules. No person may operate an aircraft within a Class B airspace area except in compliance with Sec. 91.129 and the following rules:

(1) The operator must receive an ATC clearance from the ATC facility having jurisdiction for that area before operating an aircraft in that area.

(2) Unless otherwise authorized by ATC, each person operating a large turbine engine-powered airplane to or from a primary airport for which a Class B airspace area is designated must operate at or above the designated floors of the Class B airspace area while within the lateral limits of that area.

(3) Any person conducting pilot training operations at an airport within a Class B airspace area must comply with any procedures established by ATC for such operations in that area.

(b) Pilot requirements. (1) No person may take off or land a civil aircraft at an airport within a Class B airspace area or operate a civil aircraft within a Class B airspace area unless--

(i) The pilot in command holds at least a private pilot certificate;

or

(ii) The aircraft is operated by a student pilot or recreational pilot who seeks private pilot certification and has met the requirements of Sec. 61.95 of this chapter.

(2) Notwithstanding the provisions of paragraph (b)(1)(ii) of this section, no person may take off or land a civil aircraft at those airports listed in section 4 of appendix D of this part unless the pilot in command holds at least a private pilot certificate.

(c) Communications and navigation equipment requirements. Unless otherwise authorized by ATC, no person may operate an aircraft within a Class B airspace area unless that aircraft is equipped with--

(1) For IFR operation. An operable VOR or TACAN receiver; and

(2) For all operations. An operable two-way radio capable of communications with ATC on appropriate frequencies for that Class B airspace area.

(d) Transponder requirements. No person may operate an aircraft in a Class B airspace area unless the aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment specified in paragraph (a) of Sec. 91.215, except as provided in paragraph (d) of that section.

[Doc. No. 24458, 56 FR 65658, Dec. 17, 1991]

#### Sec. 91.133 Restricted and prohibited areas.

(a) No person may operate an aircraft within a restricted area (designated in part 73) contrary to the restrictions imposed, or within a prohibited area, unless that person has the permission of the using or controlling agency, as appropriate.

(b) Each person conducting, within a restricted area, an aircraft operation (approved by the using agency) that creates the same hazards as the operations for which the restricted area was designated may deviate from the rules of this subpart that are not compatible with the operation of the aircraft.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.133 was added effective August 18, 1990.

#### Sec. 91.135 Operations in Class A airspace.

Except as provided in paragraph (d) of this section, each person operating an aircraft in Class A airspace must conduct that operation under instrument flight rules (IFR) and in compliance with the following:

(a) Clearance. Operations may be conducted only under an ATC clearance received prior to entering the airspace.

(b) Communications. Unless otherwise authorized by ATC, each aircraft operating in Class A airspace must be equipped with a two-way radio capable of communicating with ATC on a frequency assigned by ATC. Each pilot must maintain two-way radio communications with ATC while operating in Class A airspace.

(c) Transponder requirement. Unless otherwise authorized by ATC, no person may operate an aircraft within Class A airspace unless that aircraft is equipped with the applicable equipment specified in Sec. 91.215.

(d) ATC authorizations. An operator may deviate from any provision of this

section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction of the airspace concerned. In the case of an inoperative transponder, ATC may immediately approve an operation within a Class A airspace area allowing flight to continue, if desired, to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made, or both. Requests for deviation from any provision of this section must be submitted in writing, at least 4 days before the proposed operation. ATC may authorize a deviation on a continuing basis or for an individual flight.

[Doc. No. 24458, 56 FR 65659, Dec. 17, 1991]

#### Sec. 91.137 Temporary flight restrictions.

(a) The Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition, whenever he determines it is necessary in order to--

(1) Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface;

(2) Provide a safe environment for the operation of disaster relief aircraft; or

(3) Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest.

The Notice to Airmen will specify the hazard or condition that requires the imposition of temporary flight restrictions.

(b) When a NOTAM has been issued under paragraph (a)(1) of this section, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

(c) When a NOTAM has been issued under paragraph (a)(2) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions are met:

(1) The aircraft is participating in hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

(2) The aircraft is carrying law enforcement officials.

(3) The aircraft is operating under the ATC approved IFR flight plan.

(4) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather, or terrain; notification is given to the Flight Service Station (FSS) or ATC facility specified in the NOTAM to receive advisories concerning disaster relief aircraft operations; and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.

(5) The aircraft is carrying properly accredited news representatives, and, prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized by the official in charge of on scene emergency response activities.

(d) When a NOTAM has been issued under paragraph (a)(3) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions is met:

(1) The operation is conducted directly to or from an airport within the

area, or is necessitated by the impracticability of VFR flight above or around the area due to weather or terrain, and the operation is not conducted for the purpose of observing the incident or event.

(2) The aircraft is operating under an ATC approved IFR flight plan.

(3) The aircraft is carrying incident or event personnel, or law enforcement officials.

(4) The aircraft is carrying properly accredited news representatives and, prior to entering that area, a flight plan is filed with the appropriate FSS or ATC facility specified in the NOTAM.

(e) Flight plans filed and notifications made with an FSS or ATC facility under this section shall include the following information:

(1) Aircraft identification, type and color.

(2) Radio communications frequencies to be used.

(3) Proposed times of entry of, and exit from, the designated area.

(4) Name of news media or organization and purpose of flight.

(5) Any other information requested by ATC.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.137 was added effective August 18, 1990.

Sec. 91.138 Temporary flight restrictions in national disaster areas in the State of Hawaii.

(a) When the Administrator has determined, pursuant to a request and justification provided by the Governor of the State of Hawaii, or the Governor's designee, that an inhabited area within a declared national disaster area in the State of Hawaii is in need of protection for humanitarian reasons, the Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply. The Administrator will designate the extent and duration of the temporary flight restrictions necessary to provide for the protection of persons and property on the surface.

(b) When a NOTAM has been issued in accordance with this section, no person may operate an aircraft within the designated airspace unless:

(1) That person has obtained authorization from the official in charge of associated emergency or disaster relief response activities, and is operating the aircraft under the conditions of that authorization;

(2) The aircraft is carrying law enforcement officials;

(3) The aircraft is carrying persons involved in an emergency or a legitimate scientific purpose;

(4) The aircraft is carrying properly accredited newsmen, and that prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the NOTAM and the operation is conducted in compliance with the conditions and restrictions established by the official in charge of on-scene emergency response activities; or,

(5) The aircraft is operating in accordance with an ATC clearance or instruction.

(c) A NOTAM issued under this section is effective for 90 days or until the national disaster area designation is terminated, whichever comes first, unless terminated by notice or extended by the Administrator at the request of the Governor of the State of Hawaii or the Governor's designee.

Sec. 91.139 Emergency air traffic rules.

(a) This section prescribes a process for utilizing Notices to Airmen (NOTAMs) to advise of the issuance and operations under emergency air traffic rules and regulations and designates the official who is authorized to issue NOTAMs on behalf of the Administrator in certain matters under this section.

(b) Whenever the Administrator determines that an emergency condition exists, or will exist, relating to the FAA's ability to operate the air traffic control system and during which normal flight operations under this chapter cannot be conducted consistent with the required levels of safety and efficiency--

(1) The Administrator issues an immediately effective air traffic rule or regulation in response to that emergency condition; and

(2) The Administrator or the Associate Administrator for Air Traffic may utilize the NOTAM system to provide notification of the issuance of the rule or regulation.

Those NOTAMs communicate information concerning the rules and regulations that govern flight operations, the use of navigation facilities, and designation of that airspace in which the rules and regulations apply.

(c) When a NOTAM has been issued under this section, no person may operate an aircraft, or other device governed by the regulation concerned, within the designated airspace except in accordance with the authorizations, terms, and conditions prescribed in the regulation covered by the NOTAM.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.139 was added effective August 18, 1990.

Sec. 91.141 Flight restrictions in the proximity of the Presidential and other parties.

No person may operate an aircraft over or in the vicinity of any area to be visited or traveled by the President, the Vice President, or other public figures contrary to the restrictions established by the Administrator and published in a Notice to Airmen (NOTAM).

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.141 was added effective August 18, 1990.

Sec. 91.143 Flight limitation in the proximity of space flight operations.

No person may operate any aircraft of U.S. registry, or pilot any aircraft under the authority of an airman certificate issued by the Federal Aviation Administration within areas designated in a Notice to Airmen (NOTAM) for space flight operations except when authorized by ATC, or operated under the control of the Department of Defense Manager for Space Transportation System Contingency Support Operations.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.143 was added effective August 18, 1990.

Sec. 91.144 Temporary Restriction on Flight Operations During Abnormally High Barometric Pressure Conditions.

(a) Special flight restrictions. When any information indicates that barometric pressure on the route of flight currently exceeds or will exceed 31 inches of mercury, no person may operate an aircraft or initiate a flight contrary to the requirements established by the Administrator and published in a Notice to Airmen issued under this section.

(b) Waivers. The Administrator is authorized to waive any restriction issued under paragraph (a) of this section to permit emergency supply, transport, or medical services to be delivered to isolated communities, where the operation can be conducted with an acceptable level of safety.

[Amdt. 91-240, 59 FR 17452, Apr. 12, 1994, and 59 FR 37669, July 25, 1994]

Secs. 91.145--91.149 [Reserved]

Visual Flight Rules

Sec. 91.151 Fuel requirements for flight in VFR conditions.

(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed--

(1) During the day, to fly after that for at least 30 minutes; or

(2) At night, to fly after that for at least 45 minutes.

(b) No person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

Sec. 91.153 VFR flight plan: Information required.

(a) Information required. Unless otherwise authorized by ATC, each person filing a VFR flight plan shall include in it the following information:

(1) The aircraft identification number and, if necessary, its radio call sign.

(2) The type of the aircraft or, in the case of a formation flight, the type of each aircraft and the number of aircraft in the formation.

(3) The full name and address of the pilot in command or, in the case of a formation flight, the formation commander.

(4) The point and proposed time of departure.

(5) The proposed route, cruising altitude (or flight level), and true airspeed at that altitude.

(6) The point of first intended landing and the estimated elapsed time until over that point.

(7) The amount of fuel on board (in hours).

(8) The number of persons in the aircraft, except where that information is otherwise readily available to the FAA.

(9) Any other information the pilot in command or ATC believes is necessary for ATC purposes.

(b) Cancellation. When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify an FAA Flight Service Station or ATC facility.

#### Sec. 91.155 Basic VFR weather minimums.

(a) Except as provided in paragraph (b) of this section and Sec. 91.157, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

Airspace	Flight visibility	Distance from clouds
Class A	Not Applicable	Not Applicable.
Class B	3 statute miles	Clear of Clouds.
Class C	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.
Class D	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.
Class E:		
Less than 10,000 feet MSL	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal
At or above 10,000 feet MSL	5 statute miles	1,000 feet below. 1,000 feet above. 1 statute mile horizontal.
Class G:		
1,200 feet or less above the surface (regardless of MSL altitude)		
Day, except as provided in Sec. 91.155(b)	1 statute mile	Clear of clouds.
Night, except as provided in Sec. 91.155(b)	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.
More than 1,200 feet above the surface but less than 10,000 feet MSL		
Day	1 statute mile	500 feet below. 1,000 feet above. 2,000 feet horizontal.
Night	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.

More than 1,200 feet above the  
surface and at or above 10,000  
feet MSL

5 statute miles 1,000 feet below.  
1,000 feet above.  
1 statute mile horizontal.

(b) Class G Airspace. Notwithstanding the provisions of paragraph (a) of this section, the following operations may be conducted in Class G airspace below 1,200 feet above the surface:

(1) Helicopter. A helicopter may be operated clear of clouds if operated at a speed that allows the pilot adequate opportunity to see any air traffic or obstruction in time to avoid a collision.

(2) Airplane. When the visibility is less than 3 statute miles but not less than 1 statute mile during night hours, an airplane may be operated clear of clouds if operated in an airport traffic pattern within one-half mile of the runway.

(c) Except as provided in Sec. 91.157, no person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.

(d) Except as provided in Sec. 91.157 of this part, no person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport--

(1) Unless ground visibility at that airport is at least 3 statute miles;  
or

(2) If ground visibility is not reported at that airport, unless flight visibility during landing or takeoff, or while operating in the traffic pattern is at least 3 statute miles.

(e) For the purpose of this section, an aircraft operating at the base altitude of a Class E airspace area is considered to be within the airspace directly below that area.

[Amdt. No. 91-227, 56 FR 65660, Dec. 17, 1991, as amended by Amdt. 91-235, 58 FR 51968, Oct. 5, 1993; 58 FR 57549, Oct. 26, 1993]

#### Sec. 91.157 Special VFR weather minimums.

(a) Except as provided in appendix D, section 3, of this part, special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in Sec. 91.155, below 10,000 feet MSL within the airspace contained by the upward extension of the lateral boundaries of the controlled airspace designated to the surface for an airport.

(b) Special VFR operations may only be conducted--

(1) With an ATC clearance;

(2) Clear of clouds;

(3) Except for helicopters, when flight visibility is at least 1 statute mile; and

(4) Except for helicopters, between sunrise and sunset (or in Alaska, when the sun is 6 degrees or more below the horizon) unless--

(i) The person being granted the ATC clearance meets the applicable requirements for instrument flight under part 61 of this chapter; and

(ii) The aircraft is equipped as required in Sec. 91.205(d).

(c) No person may take off or land an aircraft (other than a helicopter) under special VFR--

(1) Unless ground visibility is at least 1 statute mile; or

(2) If ground visibility is not reported, unless flight visibility is at

least 1 statute mile.

\$Amdt. 91-235, 58 FR 51968, Oct. 5, 1993; 58 FR 57549, Oct. 26, 1993, as amended by Amdt. 91-247, 60 FR 66875, Dec. 27, 1995]

#### Sec. 91.159 VFR cruising altitude or flight level.

Except while holding in a holding pattern of 2 minutes or less, or while turning, each person operating an aircraft under VFR in level cruising flight more than 3,000 feet above the surface shall maintain the appropriate altitude or flight level prescribed below, unless otherwise authorized by ATC:

- (a) When operating below 18,000 feet MSL and--
  - (1) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude +500 feet (such as 3,500, 5,500, or 7,500); or
  - (2) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude +500 feet (such as 4,500, 6,500, or 8,500).
- (b) When operating above 18,000 feet MSL to flight level 290 (inclusive) and--
  - (1) On a magnetic course of zero degrees through 179 degrees, any odd flight level +500 feet (such as 195, 215, or 235); or
  - (2) On a magnetic course of 180 degrees through 359 degrees, any even flight level +500 feet (such as 185, 205, or 225).
- (c) When operating above flight level 290 and--
  - (1) On a magnetic course of zero degrees through 179 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 300 (such as flight level 300, 340, or 380); or
  - (2) On a magnetic course of 180 degrees through 359 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 320 (such as flight level 320, 360, or 400).

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.159 was added effective August 18, 1990.

Secs. 91.161--91.165 [Reserved]

### Instrument Flight Rules

#### Sec. 91.167 Fuel requirements for flight in IFR conditions.

- (a) No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to--
  - (1) Complete the flight to the first airport of intended landing;
  - (2) Except as provided in paragraph (b) of this section, fly from that airport to the alternate airport; and
  - (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.
- (b) Paragraph (a) (2) of this section does not apply if:

(1) Part 97 of this chapter prescribes a standard instrument approach procedure to, or a special instrument approach procedure has been issued by the Administrator to the operator for, the first airport of intended landing; and

(2) Appropriate weather reports or weather forecasts, or a combination of them, indicate the following:

(i) For aircraft other than helicopters. For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

(ii) For helicopters. At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport elevation, or at least 400 feet above the lowest applicable approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

[Amdt. 91-259, 65 FR 3540 , Jan. 21, 2000]

Sec. 91.169 IFR flight plan: Information required.

(a) Information required. Unless otherwise authorized by ATC, each person filing an IFR flight plan must include in it the following information:

(1) Information required under Sec. 91.153 (a) of this part;

(2) Except as provided in paragraph (b) of this section, an alternate airport.

(b) Paragraph (a) (2) of this section does not apply if :

(1) Part 97 of this chapter prescribes a standard instrument approach procedure to, or a special instrument approach procedure has been issued by the Administrator to the operator for, the first airport of intended landing; and

(2) Appropriate weather reports or weather forecasts, or a combination of them, indicate the following:

(i) For aircraft other than helicopters. For at least 1 hour before and for 1 hour after the estimated time of arrival, the ceiling will be at least 2,000 feet above the airport elevation and the visibility will be at least 3 statute miles.

(ii) For helicopters. At the estimated time of arrival and for 1 hour after the estimated time of arrival, the ceiling will be at least 1,000 feet above the airport elevation, or at least 400 feet above the lowest applicable approach minima, whichever is higher, and the visibility will be at least 2 statute miles.

(c) IFR alternate airport weather minima. Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless appropriate weather reports or weather forecasts, or a combination of them, indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following weather minima:

(1) If an instrument approach procedure has been published in part 97 of this chapter, or a special instrument approach procedure has been issued by the Administrator to the operator, for that airport, the following minima:

(i) For aircraft other than helicopters: The alternate airport minima specified in that procedure, or if none are specified the following standard approach minima:

(A) For a precision approach procedure. Ceiling 600 feet and visibility 2 statute miles.

(B) For a nonprecision approach procedure. Ceiling 800 feet and

visibility 2 statute miles.

(ii) For helicopters: Ceiling 200 feet above the minimum for the approach to be flown, and visibility at least 1 statute mile but never less than the minimum visibility for the approach to be flown, and

(2) If no instrument approach procedure has been published in part 97 of this chapter and no special instrument approach procedure has been issued by the Administrator to the operator, for the alternate airport, the ceiling and visibility minima are those allowing descent from the MEA, approach, and landing under basic VFR.

(d) Cancellation. When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify an FAA Flight Service Station or ATC facility.

[Amdt. 91-259, 65 FR 3540 , Jan. 21, 2000]

#### Sec. 91.171 VOR equipment check for IFR operations.

(a) No person may operate a civil aircraft under IFR using the VOR system of radio navigation unless the VOR equipment of that aircraft--

(1) Is maintained, checked, and inspected under an approved procedure; or

(2) Has been operationally checked within the preceding 30 days, and was found to be within the limits of the permissible indicated bearing error set forth in paragraph (b) or (c) of this section.

(b) Except as provided in paragraph (c) of this section, each person conducting a VOR check under paragraph (a) (2) of this section shall--

(1) Use, at the airport of intended departure, an FAA-operated or approved test signal or a test signal radiated by a certificated and appropriately rated radio repair station or, outside the United States, a test signal operated or approved by an appropriate authority to check the VOR equipment (the maximum permissible indicated bearing error is plus or minus 4 degrees); or

(2) Use, at the airport of intended departure, a point on the airport surface designated as a VOR system checkpoint by the Administrator, or, outside the United States, by an appropriate authority (the maximum permissible bearing error is plus or minus 4 degrees);

(3) If neither a test signal nor a designated checkpoint on the surface is available, use an airborne checkpoint designated by the Administrator or, outside the United States, by an appropriate authority (the maximum permissible bearing error is plus or minus 6 degrees); or

(4) If no check signal or point is available, while in flight--

(i) Select a VOR radial that lies along the centerline of an established VOR airway;

(ii) Select a prominent ground point along the selected radial preferably more than 20 nautical miles from the VOR ground facility and maneuver the aircraft directly over the point at a reasonably low altitude; and

(iii) Note the VOR bearing indicated by the receiver when over the ground point (the maximum permissible variation between the published radial and the indicated bearing is 6 degrees).

(c) If dual system VOR (units independent of each other except for the antenna) is installed in the aircraft, the person checking the equipment may check one system against the other in place of the check procedures specified in paragraph (b) of this section. Both systems shall be tuned to the same VOR ground facility and note the indicated bearings to that station. The maximum permissible variation between the two indicated bearings is 4 degrees.

(d) Each person making the VOR operational check, as specified in paragraph (b) or (c) of this section, shall enter the date, place, bearing error, and sign the aircraft log or other record. In addition, if a test signal radiated by a repair station, as specified in paragraph (b) (1) of this section, is

used, an entry must be made in the aircraft log or other record by the repair station certificate holder or the certificate holder's representative certifying to the bearing transmitted by the repair station for the check and the date of transmission.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

Sec. 91.173 ATC clearance and flight plan required.

No person may operate an aircraft in controlled airspace under IFR unless that person has--

- (a) Filed an IFR flight plan; and
- (b) Received an appropriate ATC clearance.

Sec. 91.175 Takeoff and landing under IFR.

- (a) Instrument approaches to civil airports.

Unless otherwise authorized by the Administrator, when an instrument letdown to a civil airport is necessary, each person operating an aircraft, except a military aircraft of the United States, shall use a standard instrument approach procedure prescribed for the airport in part 97 of this chapter.

(b) Authorized DH or MDA. For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH or MDA, the authorized DH or MDA is the highest of the following:

- (1) The DH or MDA prescribed by the approach procedure.
- (2) The DH or MDA prescribed for the pilot in command.
- (3) The DH or MDA for which the aircraft is equipped.

(c) Operation below DH or MDA. Where a DH or MDA is applicable, no pilot may operate an aircraft, except a military aircraft of the United States, at any airport below the authorized MDA or continue an approach below the authorized DH unless--

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and for operations conducted under part 121 or part 135 unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and

(3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

- (iv) The threshold lights.
- (v) The runway end identifier lights.
- (vi) The visual approach slope indicator.
- (vii) The touchdown zone or touchdown zone markings.
- (viii) The touchdown zone lights.
- (ix) The runway or runway markings.
- (x) The runway lights.

(d) Landing. No pilot operating an aircraft, except a military aircraft of the United States, may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

(e) Missed approach procedures. Each pilot operating an aircraft, except a military aircraft of the United States, shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:

(1) Whenever the requirements of paragraph (c) of this section are not met at either of the following times:

- (i) When the aircraft is being operated below MDA; or
- (ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.

(2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

(f) Civil airport takeoff minimums. Unless otherwise authorized by the Administrator, no pilot operating an aircraft under parts 121, 125, 127, 129, or 135 of this chapter may take off from a civil airport under IFR unless weather conditions are at or above the weather minimum for IFR takeoff prescribed for that airport under part 97 of this chapter. If takeoff minimums are not prescribed under part 97 of this chapter for a particular airport, the following minimums apply to takeoffs under IFR for aircraft operating under those parts:

(1) For aircraft, other than helicopters, having two engines or less--1 statute mile visibility.

(2) For aircraft having more than two engines--  $\frac{1}{2}$  statute mile visibility.

(3) For helicopters-- $\frac{1}{2}$  statute mile visibility.

(g) Military airports. Unless otherwise prescribed by the Administrator, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the takeoff and landing minimum prescribed by the military authority having jurisdiction of that airport.

(h) Comparable values of RVR and ground visibility. (1) Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table in paragraph (h)(2) of this section and shall be the visibility minimum for takeoff or landing on that runway.

RVR (feet)	Visibility (statute miles)
1,600 . . . . .	1/4
2,400 . . . . .	$\frac{1}{2}$
3,200 . . . . .	5/8
4,000 . . . . .	3/4
4,500 . . . . .	7/8

5,000 . . . . .	1
6,000 . . . . .	1 1/4

(i) Operations on unpublished routes and use of radar in instrument approach procedures. When radar is approved at certain locations for ATC purposes, it may be used not only for surveillance and precision radar approaches, as applicable, but also may be used in conjunction with instrument approach procedures predicated on other types of radio navigational aids. Radar vectors may be authorized to provide course guidance through the segments of an approach to the final course or fix. When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, shall, in addition to complying with Sec. 91.177, maintain the last altitude assigned to that pilot until the aircraft is established on a segment of a published route or instrument approach procedure unless a different altitude is assigned by ATC. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Upon reaching the final approach course or fix, the pilot may either complete the instrument approach in accordance with a procedure approved for the facility or continue a surveillance or precision radar approach to a landing.

(j) Limitation on procedure turns. In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies "No PT," no pilot may make a procedure turn unless cleared to do so by ATC.

(k) ILS components. The basic ground components of an ILS are the localizer, glide slope, outer marker, middle marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. A compass locator or precision radar may be substituted for the outer or middle marker. DME, VOR, or nondirectional beacon fixes authorized in the standard instrument approach procedure or surveillance radar may be substituted for the outer marker. Applicability of, and substitution for, the inner marker for Category II or III approaches is determined by the appropriate part 97 approach procedure, letter of authorization, or operations specification pertinent to the operations.

#### Sec. 91.177 Minimum altitudes for IFR operations.

(a) Operation of aircraft at minimum altitudes. Except when necessary for takeoff or landing, no person may operate an aircraft under IFR below--

(1) The applicable minimum altitudes prescribed in Parts 95 and 97 of this chapter; or

(2) If no applicable minimum altitude is prescribed in those parts--

(i) In the case of operations over an area designated as a mountainous area in part 95, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(ii) In any other case, an altitude of 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown.

However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, when within 22 nautical miles of the VOR concerned (based on the pilot's reasonable estimate of that distance).

(b) Climb. Climb to a higher minimum IFR altitude shall begin immediately

after passing the point beyond which that minimum altitude applies, except that when ground obstructions intervene, the point beyond which that higher minimum altitude applies shall be crossed at or above the applicable MCA.

Sec. 91.179 IFR cruising altitude or flight level.

(a) In controlled airspace. Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC. However, if the ATC clearance assigns "VFR conditions on-top," that person shall maintain an altitude or flight level as prescribed by Sec. 91.159.

(b) In uncontrolled airspace. Except while in a holding pattern of 2 minutes or less or while turning, each person operating an aircraft under IFR in level cruising flight in uncontrolled airspace shall maintain an appropriate altitude as follows:

(1) When operating below 18,000 feet MSL and--

(i) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude (such as 3,000, 5,000, or 7,000); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude (such as 2,000, 4,000, or 6,000).

(2) When operating at or above 18,000 feet MSL but below flight level 290, and--

(i) On a magnetic course of zero degrees through 179 degrees, any odd flight level (such as 190, 210, or 230); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level (such as 180, 200, or 220).

(3) When operating at flight level 290 and above, and--

(i) On a magnetic course of zero degrees through 179 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 290 (such as flight level 290, 330, or 370); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 310 (such as flight level 310, 350, or 390).

Sec. 91.181 Course to be flown.

Unless otherwise authorized by ATC, no person may operate an aircraft within controlled airspace under IFR except as follows:

(a) On a Federal airway, along the centerline of that airway.

(b) On any other route, along the direct course between the navigational aids or fixes defining that route. However, this section does not prohibit maneuvering the aircraft to pass well clear of other air traffic or the maneuvering of the aircraft in VFR conditions to clear the intended flight path both before and during climb or descent.

Sec. 91.183 IFR radio communications.

The pilot in command of each aircraft operated under IFR in controlled

airspace shall have a continuous watch maintained on the appropriate frequency and shall report by radio as soon as possible--

(a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;

(b) Any unforecast weather conditions encountered; and

(c) Any other information relating to the safety of flight.

Sec. 91.185 IFR operations: Two-way radio communications failure.

(a) General. Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) VFR conditions. If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) IFR conditions. If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) Route. (i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) Altitude. At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in Sec. 91.121(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) Leave clearance limit. (i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expect-further-clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expect-further-clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

[Doc. No. 18334, 54 FR 34294, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989]

Sec. 91.187 Operation under IFR in controlled airspace: Malfunction reports.

(a) The pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.

(b) In each report required by paragraph (a) of this section, the pilot in command shall include the--

- (1) Aircraft identification;
- (2) Equipment affected;
- (3) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and
- (4) Nature and extent of assistance desired from ATC.

Sec. 91.189 Category II and III operations: General operating rules.

(a) No person may operate a civil aircraft in a Category II or III operation unless--

(1) The flight crew of the aircraft consists of a pilot in command and a second in command who hold the appropriate authorizations and ratings prescribed in Sec. 61.3 of this chapter;

(2) Each flight crewmember has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

(3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used.

(b) Unless otherwise authorized by the Administrator, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.

(c) Authorized DH. For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH, the authorized DH is the highest of the following:

- (1) The DH prescribed by the approach procedure.
- (2) The DH prescribed for the pilot in command.
- (3) The DH for which the aircraft is equipped.

(d) Unless otherwise authorized by the Administrator, no pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DH may continue the approach below the authorized decision height unless the following conditions are met:

(1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.

(2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.

(iv) The threshold lights.

(v) The touchdown zone or touchdown zone markings.

(vi) The touchdown zone lights.

(e) Unless otherwise authorized by the Administrator, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of paragraph (d) of this section are not met.

(f) No person operating an aircraft using a Category III approach without

decision height may land that aircraft except in accordance with the provisions of the letter of authorization issued by the Administrator.

(g) Paragraphs (a) through (f) of this section do not apply to operations conducted by the holders of certificates issued under part 121, 125, 129, or 135 of this chapter. No person may operate a civil aircraft in a Category II or Category III operation conducted by the holder of a certificate issued under part 121, 125, 129, or 135 of this chapter unless the operation is conducted in accordance with that certificate holder's operations specifications.

#### Sec. 91.191 Category II and Category III manual.

(a) Except as provided in paragraph (c) of this section, after August 4, 1997, no person may operate a U.S.-registered civil aircraft in a Category II or a Category III operation unless--

(1) There is available in the aircraft a current and approved Category II or Category III manual, as appropriate, for that aircraft;

(2) The operation is conducted in accordance with the procedures, instructions, and limitations in the appropriate manual; and

(3) The instruments and equipment listed in the manual that are required for a particular Category II or Category III operation have been inspected and maintained in accordance with the maintenance program contained in the manual.

(b) Each operator must keep a current copy of each approved manual at its principal base of operations and must make each manual available for inspection upon request by the Administrator.

(c) This section does not apply to operations conducted by a holder of a certificate issued under part 121 or part 135 of this chapter.

[Amdt. 91-251, 61 FR 34560, July 2, 1996]

#### Sec. 91.193 Certificate of authorization for certain Category II operations.

The Administrator may issue a certificate of authorization authorizing deviations from the requirements of Secs. 91.189, 91.191, and 91.205(f) for the operation of small aircraft identified as Category A aircraft in Sec. 97.3 of this chapter in Category II operations if the Administrator finds that the proposed operation can be safely conducted under the terms of the certificate. Such authorization does not permit operation of the aircraft carrying persons or property for compensation or hire.

Effective Date Note: At 54 FR 34291, August 18, 1989, Sec. 91.193 was revised effective August 18, 1990, as set out above.

Secs. 91.195--91.199 [Reserved]

Subpart C--Equipment, Instrument, and Certificate Requirements

Sec. 91.201 [Reserved]

Sec. 91.203 Civil aircraft: Certifications required.

(a) Except as provided in Sec. 91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate. Each U.S. airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under Sec. 21.197(c) of this chapter, appropriate sections of the air carrier manual required by parts 121 and 135 of this chapter containing that portion of the operations specifications issued under Sec. 21.197(c), or an authorization under Sec. 91.611) must have on it the registration number assigned to the aircraft under part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to an FAA Flight Standards district office.

(2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second duplicate copy (pink) of the Aircraft Registration Application as provided for in Sec. 47.31(b), or a registration certificate issued under the laws of a foreign country.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under Sec. 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

(c) No person may operate an aircraft with a fuel tank installed within the passenger compartment or a baggage compartment unless the installation was accomplished pursuant to part 43 of this chapter, and a copy of FAA Form 337 authorizing that installation is on board the aircraft.

(d) No person may operate a civil airplane (domestic or foreign) into or out of an airport in the United States unless it complies with the fuel venting and exhaust emissions requirements of part 34 of this chapter.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-218, 55 FR 32861, Aug. 10, 1990]

Sec. 91.205 Powered civil aircraft with standard category U.S. airworthiness certificates: Instrument and equipment requirements.

(a) General. Except as provided in paragraphs (c)(3) and (e) of this section, no person may operate a powered civil aircraft with a standard category U.S. airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or FAA-approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

(b) Visual-flight rules (day). For VFR flight during the day, the following instruments and equipment are required:

(1) Airspeed indicator.

- (2) Altimeter.
- (3) Magnetic direction indicator.
- (4) Tachometer for each engine.
- (5) Oil pressure gauge for each engine using pressure system.
- (6) Temperature gauge for each liquid-cooled engine.
- (7) Oil temperature gauge for each air-cooled engine.
- (8) Manifold pressure gauge for each altitude engine.
- (9) Fuel gauge indicating the quantity of fuel in each tank.
- (10) Landing gear position indicator, if the aircraft has a retractable landing gear.
- (11) For small civil airplanes certificated after March 11, 1996, in accordance with part 23 of this chapter, an approved aviation red or aviation white anticollision light system. In the event of failure of any light of the anticollision light system, operation of the aircraft may continue to a location where repairs or replacement can be made.
- (12) If the aircraft is operated for hire over water and beyond power-off gliding distance from shore, approved flotation gear readily available to each occupant and at least one pyrotechnic signaling device. As used in this section, "shore" means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.
- (13) An approved safety belt with an approved metal-to-metal latching device for each occupant 2 years of age or older.
- (14) For small civil airplanes manufactured after July 18, 1978, an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in Sec. 23.561(b)(2) of this chapter. Each shoulder harness installed at a flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph--
  - (i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data; and
  - (ii) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.
- (15) An emergency locator transmitter, if required by Sec. 91.207.
- (16) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of 9 or less, manufactured after December 12, 1986, a shoulder harness for--
  - (i) Each front seat that meets the requirements of Sec. 23.785 (g) and (h) of this chapter in effect on December 12, 1985;
  - (ii) Each additional seat that meets the requirements of Sec. 23.785(g) of this chapter in effect on December 12, 1985.
- (17) For rotorcraft manufactured after September 16, 1992, a shoulder harness for each seat that meets the requirements of Sec. 27.2 or Sec. 29.2 of this chapter in effect on September 16, 1991.
- (c) Visual flight rules (night). For VFR flight at night, the following instruments and equipment are required:
  - (1) Instruments and equipment specified in paragraph (b) of this section.
  - (2) Approved position lights.
  - (3) An approved aviation red or aviation white anticollision light system on all U.S.-registered civil aircraft. Anticollision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, must at least meet the anticollision light standards of part 23, 25, 27, or 29 of this chapter, as applicable, that were in effect on August 10, 1971, except that the color may be either aviation red or aviation white. In the event of failure of any light of the anticollision light system, operations with the aircraft may be continued to a stop where repairs or replacement can be made.

- (4) If the aircraft is operated for hire, one electric landing light.
- (5) An adequate source of electrical energy for all installed electrical and radio equipment.
- (6) One spare set of fuses, or three spare fuses of each kind required, that are accessible to the pilot in flight.
- (d) Instrument flight rules. For IFR flight, the following instruments and equipment are required:
  - (1) Instruments and equipment specified in paragraph (b) of this section, and, for night flight, instruments and equipment specified in paragraph (c) of this section.
  - (2) Two-way radio communications system and navigational equipment appropriate to the ground facilities to be used.
  - (3) Gyroscopic rate-of-turn indicator, except on the following aircraft:
    - (i) Airplanes with a third attitude instrument system usable through flight attitudes of 360 degrees of pitch and roll and installed in accordance with the instrument requirements prescribed in Sec. 121.305(j) of this chapter; and
    - (ii) Rotorcraft with a third attitude instrument system usable through flight attitudes of +/-80 degrees of pitch and +/-120 degrees of roll and installed in accordance with Sec. 29.1303(g) of this chapter.
  - (4) Slip-skid indicator.
  - (5) Sensitive altimeter adjustable for barometric pressure.
  - (6) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.
  - (7) Generator or alternator of adequate capacity.
  - (8) Gyroscopic pitch and bank indicator (artificial horizon).
  - (9) Gyroscopic direction indicator (directional gyro or equivalent).
- (e) Flight at and above 24,000 ft. MSL (FL 240). If VOR navigational equipment is required under paragraph (d)(2) of this section, no person may operate a U.S.-registered civil aircraft within the 50 states and the District of Columbia at or above FL 240 unless that aircraft is equipped with approved distance measuring equipment (DME). When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATC immediately, and then may continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made.
- (f) Category II operations. The requirements for Category II operations are the instruments and equipment specified in--
  - (1) Paragraph (d) of this section; and
  - (2) Appendix A to this part.
- (g) Category III operations. The instruments and equipment required for Category III operations are specified in paragraph (d) of this section.
- (h) Exclusions. Paragraphs (f) and (g) of this section do not apply to operations conducted by a holder of a certificate issued under part 121 or part 135 of this chapter.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34304, Aug. 18, 1989, as amended by Amdt. 91-220, 55 FR 43310, Oct. 26, 1990; Amdt. 91-223, 56 FR 41052, Aug. 16, 1991; Amdt. 91-231, 57 FR 42672, Sept. 15, 1992; Amdt. 91-247, 61 FR 5171, Feb. 9, 1996; Amdt. 91-251, 61 FR 34560, July 2, 1996]

#### Sec. 91.207 Emergency locator transmitters.

- (a) Except as provided in paragraphs (e) and (f) of this section, no person may operate a U.S.-registered civil airplane unless--
  - (1) There is attached to the airplane an approved automatic type emergency

locator transmitter that is in operable condition for the following operations, except that after June 21, 1995, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations:

(i) Those operations governed by the supplemental air carrier and commercial operator rules of parts 121 and 125;

(ii) Charter flights governed by the domestic and flag air carrier rules of part 121 of this chapter; and

(iii) Operations governed by part 135 of this chapter; or

(2) For operations other than those specified in paragraph (a)(1) of this section, there must be attached to the airplane an approved personal type or an approved automatic type emergency locator transmitter that is in operable condition, except that after June 21, 1995, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations.

(b) Each emergency locator transmitter required by paragraph (a) of this section must be attached to the airplane in such a manner that the probability of damage to the transmitter in the event of crash impact is minimized. Fixed and deployable automatic type transmitters must be attached to the airplane as far aft as practicable.

(c) Batteries used in the emergency locator transmitters required by paragraphs (a) and (b) of this section must be replaced (or recharged, if the batteries are rechargeable)--

(1) When the transmitter has been in use for more than 1 cumulative hour; or

(2) When 50 percent of their useful life (or, for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval.

The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter and entered in the aircraft maintenance record. Paragraph (c)(2) of this section does not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(d) Each emergency locator transmitter required by paragraph (a) of this section must be inspected within 12 calendar months after the last inspection for--

(1) Proper installation;

(2) Battery corrosion;

(3) Operation of the controls and crash sensor; and

(4) The presence of a sufficient signal radiated from its antenna.

(e) Notwithstanding paragraph (a) of this section, a person may--

(1) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the emergency locator transmitter is to be installed; and

(2) Ferry an airplane with an inoperative emergency locator transmitter from a place where repairs or replacements cannot be made to a place where they can be made.

No person other than required crewmembers may be carried aboard an airplane being ferried under paragraph (e) of this section.

(f) Paragraph (a) of this section does not apply to--

(1) Turbojet-powered aircraft;

(2) Aircraft while engaged in scheduled flights by scheduled air carriers;

(3) Aircraft while engaged in training operations conducted entirely within a 50-nautical mile radius of the airport from which such local flight operations began;

(4) Aircraft while engaged in flight operations incident to design and testing;

(5) New aircraft while engaged in flight operations incident to their manufacture, preparation, and delivery;

(6) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;

(7) Aircraft certificated by the Administrator for research and development purposes;

(8) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys;

(9) Aircraft equipped to carry not more than one person; and

(10) An aircraft during any period for which the transmitter has been temporarily removed for inspection, repair, modification, or replacement, subject to the following:

(i) No person may operate the aircraft unless the aircraft records contain an entry which includes the date of initial removal, the make, model, serial number, and reason for removing the transmitter, and a placard located in view of the pilot to show "ELT not installed."

(ii) No person may operate the aircraft more than 90 days after the ELT is initially removed from the aircraft.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-242, 59 FR 32057, June 21, 1994; 59 FR 34578, July 6, 1994]

#### Sec. 91.209 Aircraft lights.

No person may:

(a) During the period from sunset to sunrise (or, in Alaska, during the period a prominent unlighted object cannot be seen from a distance of 3 statute miles or the sun is more than 6 degrees below the horizon)--

(1) Operate an aircraft unless it has lighted position lights;

(2) Park or move an aircraft in, or in dangerous proximity to, a night flight operations area of an airport unless the aircraft--

(i) Is clearly illuminated;

(ii) Has lighted position lights; or

(iii) is in an area that is marked by obstruction lights;

(3) Anchor an aircraft unless the aircraft--

(i) Has lighted anchor lights; or

(ii) Is in an area where anchor lights are not required on vessels; or

(b) Operate an aircraft that is equipped with an anticollision light system, unless it has lighted anticollision lights. However, the anticollision lights need not be lighted when the pilot-in-command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off.

[Amdt. 91-247, 61 FR 5171, Feb. 9, 1996]

#### Sec. 91.211 Supplemental oxygen.

(a) General. No person may operate a civil aircraft of U.S. registry--

(1) At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;

(2) At cabin pressure altitudes above 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes; and

(3) At cabin pressure altitudes above 15,000 feet (MSL) unless each occupant of the aircraft is provided with supplemental oxygen.

(b) Pressurized cabin aircraft. (1) No person may operate a civil aircraft

of U.S. registry with a pressurized cabin--

(i) At flight altitudes above flight level 250 unless at least a 10-minute supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph (a) of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(ii) At flight altitudes above flight level 350 unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet (MSL), except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if there are two pilots at the controls and each pilot has a quick-donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

(2) Notwithstanding paragraph (b)(1)(ii) of this section, if for any reason at any time it is necessary for one pilot to leave the controls of the aircraft when operating at flight altitudes above flight level 350, the remaining pilot at the controls shall put on and use an oxygen mask until the other pilot has returned to that crewmember's station.

#### Sec. 91.213 Inoperative instruments and equipment.

(a) Except as provided in paragraph (d) of this section, no person may take off an aircraft with inoperative instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The aircraft has within it a letter of authorization, issued by the FAA Flight Standards district office having jurisdiction over the area in which the operator is located, authorizing operation of the aircraft under the Minimum Equipment List. The letter of authorization may be obtained by written request of the airworthiness certificate holder. The Minimum Equipment List and the letter of authorization constitute a supplemental type certificate for the aircraft.

(3) The approved Minimum Equipment List must--

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section; and

(ii) Provide for the operation of the aircraft with the instruments and equipment in an inoperable condition.

(4) The aircraft records available to the pilot must include an entry describing the inoperable instruments and equipment.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the letter authorizing the use of the list.

(b) The following instruments and equipment may not be included in a Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under Part 121, 125, or 135 of this chapter shall use

that Minimum Equipment List in connection with operations conducted with that aircraft under this part without additional approval requirements.

(d) Except for operations conducted in accordance with paragraph (a) or (c) of this section, a person may takeoff an aircraft in operations conducted under this part with inoperative instruments and equipment without an approved Minimum Equipment List provided--

(1) The flight operation is conducted in a--

(i) Rotorcraft, nonturbine-powered airplane, glider, or lighter-than-air aircraft for which a master Minimum Equipment List has not been developed; or

(ii) Small rotorcraft, nonturbine-powered small airplane, glider, or lighter-than-air aircraft for which a Master Minimum Equipment List has been developed; and

(2) The inoperative instruments and equipment are not--

(i) Part of the VFR-day type certification instruments and equipment prescribed in the applicable airworthiness regulations under which the aircraft was type certificated;

(ii) Indicated as required on the aircraft's equipment list, or on the Kinds of Operations Equipment List for the kind of flight operation being conducted;

(iii) Required by Sec. 91.205 or any other rule of this part for the specific kind of flight operation being conducted; or

(iv) Required to be operational by an airworthiness directive; and

(3) The inoperative instruments and equipment are--

(i) Removed from the aircraft, the cockpit control placarded, and the maintenance recorded in accordance with Sec. 43.9 of this chapter; or

(ii) Deactivated and placarded "Inoperative." If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with part 43 of this chapter; and

(4) A determination is made by a pilot, who is certificated and appropriately rated under part 61 of this chapter, or by a person, who is certificated and appropriately rated to perform maintenance on the aircraft, that the inoperative instrument or equipment does not constitute a hazard to the aircraft.

An aircraft with inoperative instruments or equipment as provided in paragraph (d) of this section is considered to be in a properly altered condition acceptable to the Administrator.

(e) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued in accordance with Secs. 21.197 and 21.199 of this chapter.

#### Sec. 91.215 ATC transponder and altitude reporting equipment and use.

(a) All airspace: U.S.-registered civil aircraft. For operations not conducted under part 121, 127 or 135 of this chapter, ATC transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74b (Mode A) or any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S).

(b) All airspace. Unless otherwise authorized or directed by ATC, no person may operate an aircraft in the airspace described in paragraphs (b) (1) through (b) (5) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having either Mode 3/A 4096 code capability, replying to Mode 3/A interrogations with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATC and intermode and Mode S interrogations in accordance with the applicable provisions specified in TSO C-112, and that aircraft is

equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies--

(1) All aircraft. In Class A, Class B, and Class C airspace areas;

(2) All aircraft. In all airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part from the surface upward to 10,000 feet MSL;

(3) Notwithstanding paragraph (b) (2) of this section, any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon or glider may conduct operations in the airspace within 30 nautical miles of an airport listed in appendix D, section 1 of this part provided such operations are conducted--

(i) Outside any Class A, Class B, or Class C airspace area; and

(ii) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower; and

(4) All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL; and

(5) All aircraft except any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon, or glider---

(i) In all airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface; and

(ii) In the airspace from the surface to 10,000 feet MSL within a 10-nautical-mile radius of any airport listed in appendix D, section 2 of this part, excluding the airspace below 1,200 feet outside of the lateral boundaries of the surface area of the airspace designated for that airport.

(c) Transponder-on operation. While in the airspace as specified in paragraph (b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with Sec. 91.413 of this part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.

(d) ATC authorized deviations. Requests for ATC authorized deviations must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:

(1) For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.

(2) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.

(3) For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

[Doc. No. 25753, 54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-221, 56 FR 469, Jan. 4, 1991; Amdt. No. 91-227, 56 FR 65660, Dec. 17, 1991; 57 FR 328, Jan. 3, 1992; Amdt. No. 91-229, 57 FR 34618, Aug. 5, 1992]

Sec. 91.217 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference.

No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder--

(a) When deactivation of that equipment is directed by ATC;

(b) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury for altitudes from sea level to the maximum operating altitude of the aircraft; or

(c) Unless the altimeters and digitizers in that equipment meet the standards of TSO-C10b and TSO-C88, respectively.

Sec. 91.219 Altitude alerting system or device: Turbojet-powered civil airplanes.

(a) Except as provided in paragraph (d) of this section, no person may operate a turbojet-powered U.S.-registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of paragraph (b) of this section.

(b) Each altitude alerting system or device required by paragraph (a) of this section must be able to--

(1) Alert the pilot--

(i) Upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that preselected altitude; or

(ii) Upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that preselected altitude, by an aural signal;

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals; and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure. However, for operation below 3,000 feet AGL, the system or device need only provide one signal, either visual or aural, to comply with this paragraph. A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine DH or MDA, as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of any airplane for the following purposes:

(1) Ferrying a newly acquired airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(2) Continuing a flight as originally planned, if the altitude alerting system or device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement

can be made.

(3) Ferrying an airplane with any inoperative altitude alerting system or device from a place where repairs or replacements cannot be made to a place where it can be made.

(4) Conducting an airworthiness flight test of the airplane.

(5) Ferrying an airplane to a place outside the United States for the purpose of registering it in a foreign country.

(6) Conducting a sales demonstration of the operation of the airplane.

(7) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside the United States for the purpose of registering it in a foreign country.

Sec. 91.221 Traffic alert and collision avoidance system equipment and use.

(a) All airspace: U.S.-registered civil aircraft. Any traffic alert and collision avoidance system installed in a U.S.-registered civil aircraft must be approved by the Administrator.

(b) Traffic alert and collision avoidance system, operation required. Each person operating an aircraft equipped with an operable traffic alert and collision avoidance system shall have that system on and operating.

Secs. 91.223--91.299 [Reserved]

#### Subpart D--Special Flight Operations

Sec. 91.301 [Reserved]

Sec. 91.303 Aerobatic flight.

No person may operate an aircraft in aerobatic flight--

(a) Over any congested area of a city, town, or settlement;

(b) Over an open air assembly of persons;

(c) Within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport;

(d) Within 4 nautical miles of the center line of any Federal airway;

(e) Below an altitude of 1,500 feet above the surface; or

(f) When flight visibility is less than 3 statute miles.

For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

[54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661,

Dec. 17, 1991]

Sec. 91.305 Flight test areas.

No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.

Sec. 91.307 Parachutes and parachuting.

(a) No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and--

(1) If a chair type (canopy in back), it has been packed by a certificated and appropriately rated parachute rigger within the preceding 120 days; or

(2) If any other type, it has been packed by a certificated and appropriately rated parachute rigger--

(i) Within the preceding 120 days, if its canopy, shrouds, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or materials that are substantially resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or

(ii) Within the preceding 60 days, if any part of the parachute is composed of silk, pongee, or other natural fiber, or materials not specified in paragraph (a)(2)(i) of this section.

(b) Except in an emergency, no pilot in command may allow, and no person may make, a parachute jump from an aircraft within the United States except in accordance with Part 105.

(c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds--

(1) A bank of 60 degrees relative to the horizon; or

(2) A nose-up or nose-down attitude of 30 degrees relative to the horizon.

(d) Paragraph (c) of this section does not apply to--

(1) Flight tests for pilot certification or rating; or

(2) Spins and other flight maneuvers required by the regulations for any certificate or rating when given by--

(i) A certificated flight instructor; or

(ii) An airline transport pilot instructing in accordance with Sec. 61.67 of this chapter.

(e) For the purposes of this section, "approved parachute" means--

(1) A parachute manufactured under a type certificate or a technical standard order (C-23 series); or

(2) A personnel-carrying military parachute identified by an NAF, AAF, or AN drawing number, an AAF order number, or any other military designation or specification number.

[54 FR 34291, Aug. 18, 1989, as amended at 62 FR 68137, Dec. 30, 1997]

Sec. 91.309 Towing: Gliders.

(a) No person may operate a civil aircraft towing a glider unless--

(1) The pilot in command of the towing aircraft is qualified under Sec. 61.69 of this chapter;

(2) The towing aircraft is equipped with a tow-hitch of a kind, and installed in a manner, that is approved by the Administrator;

(3) The towline used has breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider if--

(i) A safety link is installed at the point of attachment of the towline to the glider with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not greater than twice this operating weight.

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider end of the towline and not greater than twice the maximum certificated operating weight of the glider;

(4) Before conducting any towing operation within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport, or before making each towing flight within such controlled airspace if required by ATC, the pilot in command notifies the control tower. If a control tower does not exist or is not in operation, the pilot in command must notify the FAA flight service station serving that controlled airspace before conducting any towing operations in that airspace; and

(5) The pilots of the towing aircraft and the glider have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

(b) No pilot of a civil aircraft may intentionally release a towline, after release of a glider, in a manner that endangers the life or property of another.

[54 FR 34291, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991]

Sec. 91.311 Towing: Other than under Sec. 91.309.

No pilot of a civil aircraft may tow anything with that aircraft (other than under Sec. 91.309) except in accordance with the terms of a certificate of waiver issued by the Administrator.

Sec. 91.313 Restricted category civil aircraft: Operating limitations.

(a) No person may operate a restricted category civil aircraft--

(1) For other than the special purpose for which it is certificated; or

(2) In an operation other than one necessary to accomplish the work activity directly associated with that special purpose.

(b) For the purpose of paragraph (a) of this section, operating a restricted category civil aircraft to provide flight crewmember training in a special purpose operation for which the aircraft is certificated is considered to be an operation for that special purpose.

(c) No person may operate a restricted category civil aircraft carrying persons or property for compensation or hire. For the purposes of this paragraph, a special purpose operation involving the carriage of persons or

material necessary to accomplish that operation, such as crop dusting, seeding, spraying, and banner towing (including the carrying of required persons or material to the location of that operation), and operation for the purpose of providing flight crewmember training in a special purpose operation, are not considered to be the carriage of persons or property for compensation or hire.

(d) No person may be carried on a restricted category civil aircraft unless that person--

- (1) Is a flight crewmember;
- (2) Is a flight crewmember trainee;
- (3) Performs an essential function in connection with a special purpose operation for which the aircraft is certificated; or
- (4) Is necessary to accomplish the work activity directly associated with that special purpose.

(e) Except when operating in accordance with the terms and conditions of a certificate of waiver or special operating limitations issued by the Administrator, no person may operate a restricted category civil aircraft within the United States--

- (1) Over a densely populated area;
  - (2) In a congested airway; or
  - (3) Near a busy airport where passenger transport operations are conducted.
- (f) This section does not apply to nonpassenger-carrying civil rotorcraft external-load operations conducted under Part 133 of this chapter.

(g) No person may operate a small restricted-category civil airplane manufactured after July 18, 1978, unless an approved shoulder harness is installed for each front seat. The shoulder harness must be designed to protect each occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in Sec. 23.561(b)(2) of this chapter. The shoulder harness installation at each flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operation. For purposes of this paragraph--

- (1) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA-approved type design data; and
- (2) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

#### Sec. 91.315 Limited category civil aircraft: Operating limitations.

No person may operate a limited category civil aircraft carrying persons or property for compensation or hire.

#### Sec. 91.317 Provisionally certificated civil aircraft: Operating limitations.

(a) No person may operate a provisionally certificated civil aircraft unless that person is eligible for a provisional airworthiness certificate under Sec. 21.213 of this chapter.

(b) No person may operate a provisionally certificated civil aircraft outside the United States unless that person has specific authority to do so from the Administrator and each foreign country involved.

(c) Unless otherwise authorized by the Director, Flight Standards Service, no person may operate a provisionally certificated civil aircraft in air transportation.

(d) Unless otherwise authorized by the Administrator, no person may operate a provisionally certificated civil aircraft except--

(1) In direct conjunction with the type or supplemental type certification of that aircraft;

(2) For training flight crews, including simulated air carrier operations;

(3) Demonstration flight by the manufacturer for prospective purchasers;

(4) Market surveys by the manufacturer;

(5) Flight checking of instruments, accessories, and equipment that do not affect the basic airworthiness of the aircraft; or

(6) Service testing of the aircraft.

(e) Each person operating a provisionally certificated civil aircraft shall operate within the prescribed limitations displayed in the aircraft or set forth in the provisional aircraft flight manual or other appropriate document. However, when operating in direct conjunction with the type or supplemental type certification of the aircraft, that person shall operate under the experimental aircraft limitations of Sec. 21.191 of this chapter and when flight testing, shall operate under the requirements of Sec. 91.305 of this part.

(f) Each person operating a provisionally certificated civil aircraft shall establish approved procedures for--

(1) The use and guidance of flight and ground personnel in operating under this section; and

(2) Operating in and out of airports where takeoffs or approaches over populated areas are necessary. No person may operate that aircraft except in compliance with the approved procedures.

(g) Each person operating a provisionally certificated civil aircraft shall ensure that each flight crewmember is properly certificated and has adequate knowledge of, and familiarity with, the aircraft and procedures to be used by that crewmember.

(h) Each person operating a provisionally certificated civil aircraft shall maintain it as required by applicable regulations and as may be specially prescribed by the Administrator.

(i) Whenever the manufacturer, or the Administrator, determines that a change in design, construction, or operation is necessary to ensure safe operation, no person may operate a provisionally certificated civil aircraft until that change has been made and approved. Section 21.99 of this chapter applies to operations under this section.

(j) Each person operating a provisionally certificated civil aircraft--

(1) May carry in that aircraft only persons who have a proper interest in the operations allowed by this section or who are specifically authorized by both the manufacturer and the Administrator; and

(2) Shall advise each person carried that the aircraft is provisionally certificated.

(k) The Administrator may prescribe additional limitations or procedures that the Administrator considers necessary, including limitations on the number of persons who may be carried in the aircraft.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989]

Sec. 91.319 Aircraft having experimental certificates: Operating limitations.

(a) No person may operate an aircraft that has an experimental certificate--

- (1) For other than the purpose for which the certificate was issued; or
- (2) Carrying persons or property for compensation or hire.

(b) No person may operate an aircraft that has an experimental certificate outside of an area assigned by the Administrator until it is shown that--

- (1) The aircraft is controllable throughout its normal range of speeds and throughout all the maneuvers to be executed; and
- (2) The aircraft has no hazardous operating characteristics or design features.

(c) Unless otherwise authorized by the Administrator in special operating limitations, no person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway. The Administrator may issue special operating limitations for particular aircraft to permit takeoffs and landings to be conducted over a densely populated area or in a congested airway, in accordance with terms and conditions specified in the authorization in the interest of safety in air commerce.

(d) Each person operating an aircraft that has an experimental certificate shall--

- (1) Advise each person carried of the experimental nature of the aircraft;
- (2) Operate under VFR, day only, unless otherwise specifically authorized by the Administrator; and
- (3) Notify the control tower of the experimental nature of the aircraft when operating the aircraft into or out of airports with operating control towers.

(e) The Administrator may prescribe additional limitations that the Administrator considers necessary, including limitations on the persons that may be carried in the aircraft.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

Sec. 91.321 Carriage of candidates in Federal elections.

(a) An aircraft operator, other than one operating an aircraft under the rules of part 121, 125, or 135 of this chapter, may receive payment for the carriage of a candidate in a Federal election, an agent of the candidate, or a person traveling on behalf of the candidate, if--

- (1) That operator's primary business is not as an air carrier or commercial operator;
- (2) The carriage is conducted under the rules of this part 91; and
- (3) The payment for the carriage is required, and does not exceed the amount required to be paid, by regulations of the Federal Election Commission (11 CFR et seq.).

(b) For the purposes of this section, the terms "candidate" and "election" have the same meaning as that set forth in the regulations of the Federal Election Commission.

Sec. 91.323 Increased maximum certificated weights for certain airplanes operated in Alaska.

(a) Notwithstanding any other provision of the Federal Aviation Regulations, the Administrator will approve, as provided in this section, an increase in the maximum certificated weight of an airplane type certificated under Aeronautics Bulletin No. 7-A of the U.S. Department of Commerce dated January 1, 1931, as amended, or under the normal category of part 4a of the former Civil Air Regulations (14 CFR Part 4a, 1964 ed.) if that airplane is operated in the State of Alaska by--

(1) A certificate holder conducting operations under part 121 or part 135 of this chapter; or

(2) The U.S. Department of Interior in conducting its game and fish law enforcement activities or its management, fire detection, and fire suppression activities concerning public lands.

(b) The maximum certificated weight approved under this section may not exceed--

(1) 12,500 pounds;

(2) 115 percent of the maximum weight listed in the FAA aircraft specifications;

(3) The weight at which the airplane meets the positive maneuvering load factor requirement for the normal category specified in Sec. 23.337 of this chapter; or

(4) The weight at which the airplane meets the climb performance requirements under which it was type certificated.

(c) In determining the maximum certificated weight, the Administrator considers the structural soundness of the airplane and the terrain to be traversed.

(d) The maximum certificated weight determined under this section is added to the airplane's operation limitations and is identified as the maximum weight authorized for operations within the State of Alaska.

[Doc. No. 18334, 54 FR 34308, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989, as amended by Amdt. 91-252, 62 FR 13253, Mar. 19, 1997]

#### Sec. 91.325 Primary Category Aircraft: Operating limitations.

(a) No person may operate a primary category aircraft carrying persons or property for compensation or hire.

(b) No person may operate a primary category aircraft that is maintained by the pilot-owner under an approved special inspection and maintenance program except--

(1) The pilot-owner; or

(2) A designee of the pilot-owner, provided that the pilot-owner does not receive compensation for the use of the aircraft.

[Amdt. 91-230, 57 FR 41370, Sept. 9, 1992]

Secs. 91.326--91.399 [Reserved]

Subpart E--Maintenance, Preventive Maintenance, and Alterations

Sec. 91.401 Applicability.

(a) This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of U.S.-registered civil aircraft operating within or outside of the United States.

(b) Sections 91.405, 91.409, 91.411, 91.417, and 91.419 of this subpart do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in part 121, 127, 129, or Sec. 135.411(a)(2) of this chapter.

(c) Sections 91.405 and 91.409 of this part do not apply to an airplane inspected in accordance with part 125 of this chapter.

Sec. 91.403 General.

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with part 39 of this chapter.

(b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including part 43 of this chapter.

(c) No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section unless the mandatory replacement times, inspection intervals, and related procedures specified in that section or alternative inspection intervals and related procedures set forth in an operations specification approved by the Administrator under part 121, 127 or 135 of this chapter or in accordance with an inspection program approved under Sec. 91.409(e) have been complied with.

Sec. 91.405 Maintenance required.

Each owner or operator of an aircraft--

(a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter;

(b) Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service;

(c) Shall have any inoperative instrument or item of equipment, permitted to be inoperative by Sec. 91.213(d)(2) of this part, repaired, replaced, removed, or inspected at the next required inspection; and

(d) When listed discrepancies include inoperative instruments or equipment, shall ensure that a placard has been installed as required by Sec. 43.11 of this chapter.

Sec. 91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration.

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless--

(1) It has been approved for return to service by a person authorized under Sec. 43.7 of this chapter; and

(2) The maintenance record entry required by Sec. 43.9 or Sec. 43.11, as applicable, of this chapter has been made.

(b) No person may carry any person (other than crewmembers) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records.

(c) The aircraft does not have to be flown as required by paragraph (b) of this section if, prior to flight, ground tests, inspection, or both show conclusively that the maintenance, preventive maintenance, rebuilding, or alteration has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

#### Sec. 91.409 Inspections.

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had--

(1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by Sec. 43.7 of this chapter; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

(b) Except as provided in paragraph (c) of this section, no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and been approved for return to service in accordance with part 43 of this chapter or has received an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter. The 100-hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service.

(c) Paragraphs (a) and (b) of this section do not apply to--

(1) An aircraft that carries a special flight permit, a current experimental certificate, or a provisional airworthiness certificate;

(2) An aircraft inspected in accordance with an approved aircraft inspection program under part 125, 127, or 135 of this chapter and so identified by the registration number in the operations specifications of the certificate holder having the approved inspection program;

(3) An aircraft subject to the requirements of paragraph (d) or (e) of this section; or

(4) Turbine-powered rotorcraft when the operator elects to inspect that

rotorcraft in accordance with paragraph (e) of this section.

(d) Progressive inspection. Each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the FAA Flight Standards district office having jurisdiction over the area in which the applicant is located, and shall provide--

(1) A certificated mechanic holding an inspection authorization, a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection;

(2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail--

(i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;

(ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while en route and for changing an inspection interval because of service experience;

(iii) Sample routine and detailed inspection forms and instructions for their use; and

(iv) Sample reports and records and instructions for their use;

(3) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and

(4) Appropriate current technical information for the aircraft.

The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar months and be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule must ensure that the aircraft, at all times, will be airworthy and will conform to all applicable FAA aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data. If the progressive inspection is discontinued, the owner or operator shall immediately notify the local FAA Flight Standards district office, in writing, of the discontinuance. After the discontinuance, the first annual inspection under Sec. 91.409(a) (1) is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100-hour inspection under Sec. 91.409(b) is due within 100 hours after that complete inspection. A complete inspection of the aircraft, for the purpose of determining when the annual and 100-hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.

(e) Large airplanes (to which part 125 is not applicable), turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft. No person may operate a large airplane, turbojet multiengine airplane, turbopropeller-powered multiengine airplane, or turbine-powered rotorcraft unless the replacement times for life-limited parts specified in the aircraft specifications, type data sheets, or other documents approved by the Administrator are complied with and the airplane or turbine-powered rotorcraft, including the airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment, is inspected in accordance with an inspection program selected under the provisions of paragraph (f) of this section, except that, the owner or operator of a turbine-powered rotorcraft may elect to use the inspection provisions of Sec. 91.409(a), (b), (c), or (d) in lieu of an inspection option of Sec. 91.409(f).

(f) Selection of inspection program under paragraph (e) of this section. The registered owner or operator of each airplane or turbine-powered

rotorcraft described in paragraph (e) of this section must select, identify in the aircraft maintenance records, and use one of the following programs for the inspection of the aircraft:

(1) A continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program currently in use by a person holding an air carrier operating certificate or an operating certificate issued under part 121, 127, or 135 of this chapter and operating that make and model aircraft under part 121 of this chapter or operating that make and model under part 135 of this chapter and maintaining it under Sec. 135.411(a)(2) of this chapter.

(2) An approved aircraft inspection program approved under Sec. 135.419 of this chapter and currently in use by a person holding an operating certificate issued under part 135 of this chapter.

(3) A current inspection program recommended by the manufacturer.

(4) Any other inspection program established by the registered owner or operator of that airplane or turbine-powered rotorcraft and approved by the Administrator under paragraph (g) of this section. However, the Administrator may require revision of this inspection program in accordance with the provisions of Sec. 91.415.

Each operator shall include in the selected program the name and address of the person responsible for scheduling the inspections required by the program and make a copy of that program available to the person performing inspections on the aircraft and, upon request, to the Administrator.

(g) Inspection program approved under paragraph (e) of this section. Each operator of an airplane or turbine-powered rotorcraft desiring to establish or change an approved inspection program under paragraph (f)(4) of this section must submit the program for approval to the local FAA Flight Standards district office having jurisdiction over the area in which the aircraft is based. The program must be in writing and include at least the following information:

(1) Instructions and procedures for the conduct of inspections for the particular make and model airplane or turbine-powered rotorcraft, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including survival and emergency equipment required to be inspected.

(2) A schedule for performing the inspections that must be performed under the program expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

(h) Changes from one inspection program to another. When an operator changes from one inspection program under paragraph (f) of this section to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

[Doc No. 18334, 54 FR 34311, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989]

Sec. 91.411 Altimeter system and altitude reporting equipment tests and inspections.

(a) No person may operate an airplane, or helicopter, in controlled airspace under IFR unless

(1) Within the preceding 24 calendar months, each static pressure system,

each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with appendix E of part 43 of this chapter;

(2) Except for the use of system drain and alternate static pressure valves, following any opening and closing of the static pressure system, that system has been tested and inspected and found to comply with paragraph (a), appendices E and F, of part 43 of this chapter; and

(3) Following installation or maintenance on the automatic pressure altitude reporting system of the ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E, of part 43 of this chapter.

(b) The tests required by paragraph (a) of this section must be conducted by--

(1) The manufacturer of the airplane, or helicopter, on which the tests and inspections are to be performed;

(2) A certificated repair station properly equipped to perform those functions and holding--

(i) An instrument rating, Class I;

(ii) A limited instrument rating appropriate to the make and model of appliance to be tested;

(iii) A limited rating appropriate to the test to be performed;

(iv) An airframe rating appropriate to the airplane, or helicopter, to be tested; or

(v) A limited rating for a manufacturer issued for the appliance in accordance with Sec. 145.101(b)(4) of this chapter; or

(3) A certificated mechanic with an airframe rating (static pressure system tests and inspections only).

(c) Altimeter and altitude reporting equipment approved under Technical Standard Orders are considered to be tested and inspected as of the date of their manufacture.

(d) No person may operate an airplane, or helicopter, in controlled airspace under IFR at an altitude above the maximum altitude at which all altimeters and the automatic altitude reporting system of that airplane, or helicopter, have been tested.

#### Sec. 91.413 ATC transponder tests and inspections.

(a) No persons may use an ATC transponder that is specified in 91.215(a), 121.345(c), 127.123(b), or Sec. 135.143(c) of this chapter unless, within the preceding 24 calendar months, the ATC transponder has been tested and inspected and found to comply with appendix F of part 43 of this chapter; and

(b) Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), appendix E, of part 43 of this chapter.

(c) The tests and inspections specified in this section must be conducted by--

(1) A certificated repair station properly equipped to perform those functions and holding--

(i) A radio rating, Class III;

(ii) A limited radio rating appropriate to the make and model transponder to be tested;

(iii) A limited rating appropriate to the test to be performed;

(iv) A limited rating for a manufacturer issued for the transponder in accordance with Sec. 145.101(b)(4) of this chapter; or

(2) A holder of a continuous airworthiness maintenance program as provided

in part 121, 127 or Sec. 135.411(a)(2) of this chapter; or

(3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.

#### Sec. 91.415 Changes to aircraft inspection programs.

(a) Whenever the Administrator finds that revisions to an approved aircraft inspection program under Sec. 91.409(f)(4) are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the Administrator, make any changes in the program found to be necessary by the Administrator.

(b) The owner or operator may petition the Administrator to reconsider the notice to make any changes in a program in accordance with paragraph (a) of this section.

(c) The petition must be filed with the FAA Flight Standards district office which requested the change to the program within 30 days after the certificate holder receives the notice.

(d) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

#### Sec. 91.417 Maintenance records.

(a) Except for work performed in accordance with Secs. 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include--

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) including, for each, the method of compliance, the AD number, and revision date. If the AD involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by Sec. 43.9(a) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under Sec. 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

(c) The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB). In addition, the owner or operator shall present Form 337 described in paragraph (d) of this section for inspection upon request of any law enforcement officer.

(d) When a fuel tank is installed within the passenger compartment or a baggage compartment pursuant to part 43 of this chapter, a copy of FAA Form 337 shall be kept on board the modified aircraft by the owner or operator.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

#### Sec. 91.419 Transfer of maintenance records.

Any owner or operator who sells a U.S.-registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

(a) The records specified in Sec. 91.417(a)(2).

(b) The records specified in Sec. 91.417(a)(1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records by the seller does not relieve the purchaser of the responsibility under Sec. 91.417(c) to make the records available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

#### Sec. 91.421 Rebuilt engine maintenance records.

(a) The owner or operator may use a new maintenance record, without previous operating history, for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.

(b) Each manufacturer or agency that grants zero time to an engine rebuilt by it shall enter in the new record--

(1) A signed statement of the date the engine was rebuilt;

(2) Each change made as required by airworthiness directives; and

(3) Each change made in compliance with manufacturer's service bulletins, if the entry is specifically requested in that bulletin.

(c) For the purposes of this section, a rebuilt engine is a used engine that has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine with either new or used parts. However, all parts used in it must conform to the production drawing tolerances and limits for new parts or be of approved oversized or undersized dimensions for

a new engine.

Secs. 91.423--91.499 [Reserved]

## Subpart F--Large and Turbine-Powered Multiengine Airplanes

### Sec. 91.501 Applicability.

(a) This subpart prescribes operating rules, in addition to those prescribed in other subparts of this part, governing the operation of large and of turbojet-powered multiengine civil airplanes of U.S. registry. The operating rules in this subpart do not apply to those airplanes when they are required to be operated under parts 121, 125, 129, 135, and 137 of this chapter. (Section 91.409 prescribes an inspection program for large and for turbine-powered (turbojet and turboprop) multiengine airplanes of U.S. registry when they are operated under this part or part 129 or 137.)

(b) Operations that may be conducted under the rules in this subpart instead of those in parts 121, 129, 135, and 137 of this chapter when common carriage is not involved, include--

- (1) Ferry or training flights;
- (2) Aerial work operations such as aerial photography or survey, or pipeline patrol, but not including fire fighting operations;
- (3) Flights for the demonstration of an airplane to prospective customers when no charge is made except for those specified in paragraph (d) of this section;
- (4) Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests when no charge, assessment, or fee is made for the transportation;
- (5) Carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;
- (6) The carriage of company officials, employees, and guests of the company on an airplane operated under a time sharing, interchange, or joint ownership agreement as defined in paragraph (c) of this section;
- (7) The carriage of property (other than mail) on an airplane operated by a person in the furtherance of a business or employment (other than transportation by air) when the carriage is within the scope of, and incidental to, that business or employment and no charge, assessment, or fee is made for the carriage other than those specified in paragraph (d) of this section;
- (8) The carriage on an airplane of an athletic team, sports group, choral group, or similar group having a common purpose or objective when there is no charge, assessment, or fee of any kind made by any person for that carriage; and
- (9) The carriage of persons on an airplane operated by a person in the

furtherance of a business other than transportation by air for the purpose of selling them land, goods, or property, including franchises or distributorships, when the carriage is within the scope of, and incidental to, that business and no charge, assessment, or fee is made for that carriage.

(c) As used in this section--

(1) A "time sharing agreement" means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under that arrangement other than those specified in paragraph (d) of this section;

(2) An "interchange agreement" means an arrangement whereby a person leases his airplane to another person in exchange for equal time, when needed, on the other person's airplane, and no charge, assessment, or fee is made, except that a charge may be made not to exceed the difference between the cost of owning, operating, and maintaining the two airplanes;

(3) A "joint ownership agreement" means an arrangement whereby one of the registered joint owners of an airplane employs and furnishes the flight crew for that airplane and each of the registered joint owners pays a share of the charge specified in the agreement.

(d) The following may be charged, as expenses of a specific flight, for transportation as authorized by paragraphs (b) (3) and (7) and (c) (1) of this section:

(1) Fuel, oil, lubricants, and other additives.

(2) Travel expenses of the crew, including food, lodging, and ground transportation.

(3) Hangar and tie-down costs away from the aircraft's base of operation.

(4) Insurance obtained for the specific flight.

(5) Landing fees, airport taxes, and similar assessments.

(6) Customs, foreign permit, and similar fees directly related to the flight.

(7) In flight food and beverages.

(8) Passenger ground transportation.

(9) Flight planning and weather contract services.

(10) An additional charge equal to 100 percent of the expenses listed in paragraph (d) (1) of this section.

#### Sec. 91.503 Flying equipment and operating information.

(a) The pilot in command of an airplane shall ensure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:

(1) A flashlight having at least two size "D" cells, or the equivalent, that is in good working order.

(2) A cockpit checklist containing the procedures required by paragraph (b) of this section.

(3) Pertinent aeronautical charts.

(4) For IFR, VFR over-the-top, or night operations, each pertinent navigational en route, terminal area, and approach and letdown chart.

(5) In the case of multiengine airplanes, one-engine inoperative climb performance data.

(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:

(1) Before starting engines.

(2) Before takeoff.

(3) Cruise.

- (4) Before landing.
- (5) After landing.
- (6) Stopping engines.
- (7) Emergencies.
- (c) Each emergency cockpit checklist procedure required by paragraph (b) (7) of this section must contain the following procedures, as appropriate:
  - (1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.
  - (2) Emergency operation of instruments and controls.
  - (3) Engine inoperative procedures.
  - (4) Any other procedures necessary for safety.
- (d) The equipment, charts, and data prescribed in this section shall be used by the pilot in command and other members of the flight crew, when pertinent.

Sec. 91.505 Familiarity with operating limitations and emergency equipment.

(a) Each pilot in command of an airplane shall, before beginning a flight, become familiar with the Airplane Flight Manual for that airplane, if one is required, and with any placards, listings, instrument markings, or any combination thereof, containing each operating limitation prescribed for that airplane by the Administrator, including those specified in Sec. 91.9(b).

(b) Each required member of the crew shall, before beginning a flight, become familiar with the emergency equipment installed on the airplane to which that crewmember is assigned and with the procedures to be followed for the use of that equipment in an emergency situation.

Sec. 91.507 Equipment requirements: Over-the-top or night VFR operations.

No person may operate an airplane over-the-top or at night under VFR unless that airplane is equipped with the instruments and equipment required for IFR operations under Sec. 91.205(d) and one electric landing light for night operations. Each required instrument and item of equipment must be in operable condition.

Sec. 91.509 Survival equipment for overwater operations.

(a) No person may take off an airplane for a flight over water more than 50 nautical miles from the nearest shore unless that airplane is equipped with a life preserver or an approved flotation means for each occupant of the airplane.

(b) No person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has on board the following survival equipment:

- (1) A life preserver, equipped with an approved survivor locator light, for

each occupant of the airplane.

(2) Enough liferafts (each equipped with an approved survival locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane.

(3) At least one pyrotechnic signaling device for each liferaft.

(4) One self-buoyant, water-resistant, portable emergency radio signaling device that is capable of transmission on the appropriate emergency frequency or frequencies and not dependent upon the airplane power supply.

(5) A lifeline stored in accordance with Sec. 25.1411(g) of this chapter.

(c) The required liferafts, life preservers, and signaling devices must be installed in conspicuously marked locations and easily accessible in the event of a ditching without appreciable time for preparatory procedures.

(d) A survival kit, appropriately equipped for the route to be flown, must be attached to each required liferaft.

(e) As used in this section, the term shore means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.

#### Sec. 91.511 Radio equipment for overwater operations.

(a) Except as provided in paragraphs (c), (d), and (f) of this section, no person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has at least the following operable equipment:

(1) Radio communication equipment appropriate to the facilities to be used and able to transmit to, and receive from, any place on the route, at least one surface facility:

(i) Two transmitters.

(ii) Two microphones.

(iii) Two headsets or one headset and one speaker.

(iv) Two independent receivers.

(2) Appropriate electronic navigational equipment consisting of at least two independent electronic navigation units capable of providing the pilot with the information necessary to navigate the airplane within the airspace assigned by air traffic control. However, a receiver that can receive both communications and required navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver or unit.

(b) For the purposes of paragraphs (a)(1)(iv) and (a)(2) of this section, a receiver or electronic navigation unit is independent if the function of any part of it does not depend on the functioning of any part of another receiver or electronic navigation unit.

(c) Notwithstanding the provisions of paragraph (a) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigational equipment specified in paragraphs (a)(1)(i) through (iv) and (a)(2) of this section malfunctions or becomes inoperative.

(d) Notwithstanding the provisions of paragraph (a) of this section, when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

(e) As used in this section, the term "shore" means that area of the land adjacent to the water which is above the high-water mark and excludes land areas which are intermittently under water.

(f) Notwithstanding the requirements in paragraph (a)(2) of this section, a person may operate in the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean west of a line which extends from 44 deg.47'00" N / 67 deg.00'00" W to 39 deg.00'00" N / 67 deg.00'00" W to 38 deg.30'00" N / 60 deg.00'00" W south along the 60 deg.00'00" W longitude line to the point where the line intersects with the northern coast of South America, when:

(1) A single long-range navigation system is installed, operational, and appropriate for the route; and

(2) Flight conditions and the aircraft's capabilities are such that no more than a 30-minute gap in two-way radio very high frequency communications is expected to exist.

[Doc. No. 18334, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-249, 61 FR 7190, Feb. 26, 1996]

#### Sec. 91.513 Emergency equipment.

(a) No person may operate an airplane unless it is equipped with the emergency equipment listed in this section.

(b) Each item of equipment--

(1) Must be inspected in accordance with Sec. 91.409 to ensure its continued serviceability and immediate readiness for its intended purposes;

(2) Must be readily accessible to the crew;

(3) Must clearly indicate its method of operation; and

(4) When carried in a compartment or container, must have that compartment or container marked as to contents and date of last inspection.

(c) Hand fire extinguishers must be provided for use in crew, passenger, and cargo compartments in accordance with the following:

(1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used.

(2) At least one hand fire extinguisher must be provided and located on or near the flight deck in a place that is readily accessible to the flight crew.

(3) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each airplane accommodating more than six but less than 31 passengers, and at least two hand fire extinguishers must be conveniently located in the passenger compartment of each airplane accommodating more than 30 passengers.

(4) Hand fire extinguishers must be installed and secured in such a manner that they will not interfere with the safe operation of the airplane or adversely affect the safety of the crew and passengers. They must be readily accessible and, unless the locations of the fire extinguishers are obvious, their stowage provisions must be properly identified.

(d) First aid kits for treatment of injuries likely to occur in flight or in minor accidents must be provided.

(e) Each airplane accommodating more than 19 passengers must be equipped with a crash axe.

(f) Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 but less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of

this subparagraph if the Administrator finds that a different location would be more useful for evacuation of persons during an emergency.

(2) On each airplane with a seating capacity of 100 or more passengers, one megaphone installed at the forward end and one installed at the most rearward location where it would be readily accessible to a normal flight attendant seat.

Sec. 91.515 Flight altitude rules.

(a) Notwithstanding Sec. 91.119, and except as provided in paragraph (b) of this section, no person may operate an airplane under VFR at less than--

(1) One thousand feet above the surface, or 1,000 feet from any mountain, hill, or other obstruction to flight, for day operations; and

(2) The altitudes prescribed in Sec. 91.177, for night operations.

(b) This section does not apply--

(1) During takeoff or landing;

(2) When a different altitude is authorized by a waiver to this section under subpart J of this part; or

(3) When a flight is conducted under the special VFR weather minimums of Sec. 91.157 with an appropriate clearance from ATC.

Sec. 91.517 Passenger information.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

(b) The pilot in command of an airplane that is not required, in accordance with applicable aircraft and equipment requirements of this chapter, to be equipped as provided in paragraph (a) of this section shall ensure that the passengers are notified orally each time that it is necessary to fasten their safety belts and when smoking is prohibited.

(c) If passenger information signs are installed, no passenger or crewmember may smoke while any "no smoking" sign is lighted nor may any passenger or crewmember smoke in any lavatory.

(d) Each passenger required by Sec. 91.107(a)(3) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while any "fasten seat belt" sign is lighted.

(e) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with paragraphs (b), (c), and (d) of this section.

[Dkt. No. 26142, Amdt. 91-231, 57 FR 42672, Sept. 15, 1992]

Sec. 91.519 Passenger briefing.

(a) Before each takeoff the pilot in command of an airplane carrying passengers shall ensure that all passengers have been orally briefed on--

(1) Smoking: Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement, as appropriate, that the Federal Aviation Regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) Use of safety belts and shoulder harnesses: Each passenger shall be briefed on when, where, and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her. This briefing shall include a statement, as appropriate, that Federal Aviation Regulations require passenger compliance with the lighted passenger sign and/or crewmember instructions with regard to these items;

(3) Location and means for opening the passenger entry door and emergency exits;

(4) Location of survival equipment;

(5) Ditching procedures and the use of flotation equipment required under Sec. 91.509 for a flight over water; and

(6) The normal and emergency use of oxygen equipment installed on the airplane.

(b) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a member of the crew, but need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. It may be supplemented by printed cards for the use of each passenger containing--

(1) A diagram of, and methods of operating, the emergency exits; and

(2) Other instructions necessary for use of emergency equipment.

(c) Each card used under paragraph (b) must be carried in convenient locations on the airplane for the use of each passenger and must contain information that is pertinent only to the type and model airplane on which it is used.

[Dkt. No. 18334, Amdt. 91-211, 54 FR 34314, Aug. 18, 1989, as amended by Amdt. 91-231, 57 FR 42672, Sept. 15, 1992]

#### Sec. 91.521 Shoulder harness.

(a) No person may operate a transport category airplane that was type certificated after January 1, 1958, unless it is equipped at each seat at a flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in Sec. 25.785 of this chapter, except that--

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

(b) No person may operate a transport category airplane unless it is equipped at each required flight attendant seat in the passenger compartment with a combined safety belt and shoulder harness that meets the applicable requirements specified in Sec. 25.785 of this chapter, except that--

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used;

and

(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

Sec. 91.523 Carry-on baggage.

No pilot in command of an airplane having a seating capacity of more than 19 passengers may permit a passenger to stow baggage aboard that airplane except--

(a) In a suitable baggage or cargo storage compartment, or as provided in Sec. 91.525; or

(b) Under a passenger seat in such a way that it will not slide forward under crash impacts severe enough to induce the ultimate inertia forces specified in Sec. 25.561(b) (3) of this chapter, or the requirements of the regulations under which the airplane was type certificated. Restraining devices must also limit sideward motion of under-seat baggage and be designed to withstand crash impacts severe enough to induce sideward forces specified in Sec. 25.561(b) (3) of this chapter.

Sec. 91.525 Carriage of cargo.

(a) No pilot in command may permit cargo to be carried in any airplane unless--

(1) It is carried in an approved cargo rack, bin, or compartment installed in the airplane;

(2) It is secured by means approved by the Administrator; or

(3) It is carried in accordance with each of the following:

(i) It is properly secured by a safety belt or other tiedown having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(ii) It is packaged or covered to avoid possible injury to passengers.

(iii) It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.

(iv) It is not located in a position that restricts the access to or use of any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment.

(v) It is not carried directly above seated passengers.

(b) When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

Sec. 91.527 Operating in icing conditions.

- (a) No pilot may take off an airplane that has--
- (1) Frost, snow, or ice adhering to any propeller, windshield, or powerplant installation or to an airspeed, altimeter, rate of climb, or flight attitude instrument system;
  - (2) Snow or ice adhering to the wings or stabilizing or control surfaces;
- or
- (3) Any frost adhering to the wings or stabilizing or control surfaces, unless that frost has been polished to make it smooth.
- (b) Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal Aviation Regulation No. 23, or those for transport category airplane type certification, no pilot may fly--
- (1) Under IFR into known or forecast moderate icing conditions; or
  - (2) Under VFR into known light or moderate icing conditions unless the aircraft has functioning de-icing or anti-icing equipment protecting each propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.
- (c) Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal Aviation Regulation No. 23, or those for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions.
- (d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing conditions that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraphs (b) and (c) of this section based on forecast conditions do not apply.

Sec. 91.529 Flight engineer requirements.

- (a) No person may operate the following airplanes without a flight crewmember holding a current flight engineer certificate:
- (1) An airplane for which a type certificate was issued before January 2, 1964, having a maximum certificated takeoff weight of more than 80,000 pounds.
  - (2) An airplane type certificated after January 1, 1964, for which a flight engineer is required by the type certification requirements.
- (b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, that person has had at least 50 hours of flight time as a flight engineer on that type airplane or has been checked by the Administrator on that type airplane and is found to be familiar and competent with all essential current information and operating procedures.

Sec. 91.531 Second in command requirements.

- (a) Except as provided in paragraph (b) of this section, no person may operate the following airplanes without a pilot who is designated as second in command of that airplane:
- (1) A large airplane, except that a person may operate an airplane certificated under SFAR 41 without a pilot who is designated as second in

command if that airplane is certificated for operation with one pilot.

(2) A turbojet-powered multiengine airplane for which two pilots are required under the type certification requirements for that airplane.

(3) A commuter category airplane, except that a person may operate a commuter category airplane notwithstanding paragraph (a)(1) of this section, that has a passenger seating configuration, excluding pilot seats, of nine or less without a pilot who is designated as second in command if that airplane is type certificated for operations with one pilot.

(b) The Administrator may issue a letter of authorization for the operation of an airplane without compliance with the requirements of paragraph (a) of this section if that airplane is designed for and type certificated with only one pilot station. The authorization contains any conditions that the Administrator finds necessary for safe operation.

(c) No person may designate a pilot to serve as second in command, nor may any pilot serve as second in command, of an airplane required under this section to have two pilots unless that pilot meets the qualifications for second in command prescribed in Sec. 61.55 of this chapter.

#### Sec. 91.533 Flight attendant requirements.

(a) No person may operate an airplane unless at least the following number of flight attendants are on board the airplane:

(1) For airplanes having more than 19 but less than 51 passengers on board, one flight attendant.

(2) For airplanes having more than 50 but less than 101 passengers on board, two flight attendants.

(3) For airplanes having more than 100 passengers on board, two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passengers above 100.

(b) No person may serve as a flight attendant on an airplane when required by paragraph (a) of this section unless that person has demonstrated to the pilot in command familiarity with the necessary functions to be performed in an emergency or a situation requiring emergency evacuation and is capable of using the emergency equipment installed on that airplane.

#### Sec. 91.535 Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff, and landing.

(a) No operator may move an aircraft on the surface, take off, or land when any food, beverage, or tableware furnished by the operator is located at any passenger seat.

(b) No operator may move an aircraft on the surface, take off, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No operator may permit an aircraft to move on the surface, take off, or land unless each passenger serving cart is secured in its stowed position.

(d) No operator may permit an aircraft to move on the surface, take off, or land unless each movie screen that extends into the aisle is stowed.

(e) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

[Amdt. 91-231, 57 FR 42672, Sept. 15, 1992]

Secs. 91.536--91.599 [Reserved]

Subpart G--Additional Equipment and Operating Requirements for Large and  
Transport Category Aircraft

Sec. 91.601 Applicability.

This subpart applies to operation of large and transport category U.S.-registered civil aircraft.

Sec. 91.603 Aural speed warning device.

No person may operate a transport category airplane in air commerce unless that airplane is equipped with an aural speed warning device that complies with Sec. 25.1303(c) (1).

Sec. 91.605 Transport category civil airplane weight limitations.

(a) No person may take off any transport category airplane (other than a turbine-engine-powered airplane certificated after September 30, 1958) unless--

(1) The takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff;

(2) The elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined;

(3) Normal consumption of fuel and oil in flight to the airport of intended landing will leave a weight on arrival not in excess of the authorized maximum landing weight for the elevation of that airport; and

(4) The elevations of the airport of intended landing and of all specified alternate airports are within the altitude range for which the maximum landing weights have been determined.

(b) No person may operate a turbine-engine-powered transport category airplane certificated after September 30, 1958, contrary to the Airplane Flight Manual, or take off that airplane unless--

(1) The takeoff weight does not exceed the takeoff weight specified in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at the time of takeoff;

(2) Normal consumption of fuel and oil in flight to the airport of intended

landing and to the alternate airports will leave a weight on arrival not in excess of the landing weight specified in the Airplane Flight Manual for the elevation of each of the airports involved and for the ambient temperatures expected at the time of landing;

(3) The takeoff weight does not exceed the weight shown in the Airplane Flight Manual to correspond with the minimum distances required for takeoff, considering the elevation of the airport, the runway to be used, the effective runway gradient, the ambient temperature and wind component at the time of takeoff, and, if operating limitations exist for the minimum distances required for takeoff from wet runways, the runway surface condition (dry or wet). Wet runway distances associated with grooved or porous friction course runways, if provided in the Airplane Flight Manual, may be used only for runways that are grooved or treated with a porous friction course (PFC) overlay, and that the operator determines are designed, constructed, and maintained in a manner acceptable to the Administrator.

(4) Where the takeoff distance includes a clearway, the clearway distance is not greater than one-half of--

(i) The takeoff run, in the case of airplanes certificated after September 30, 1958, and before August 30, 1959; or

(ii) The runway length, in the case of airplanes certificated after August 29, 1959.

(c) No person may take off a turbine-engine-powered transport category airplane certificated after August 29, 1959, unless, in addition to the requirements of paragraph (b) of this section--

(1) The accelerate-stop distance is no greater than the length of the runway plus the length of the stopway (if present); and

(2) The takeoff distance is no greater than the length of the runway plus the length of the clearway (if present); and

(3) The takeoff run is no greater than the length of the runway.

[Docket No. 18334, 54 FR 34318, Aug. 18, 1989, as amended by Amdt. 91-256, 63 FR 8321, Feb. 18, 1998]

#### Sec. 91.607 Emergency exits for airplanes carrying passengers for hire

(a) Notwithstanding any other provision of this chapter, no person may operate a large airplane (type certificated under the Civil Air Regulations effective before April 9, 1957) in passenger-carrying operations for hire, with more than the number of occupants--

(1) Allowed under Civil Air Regulations Sec. 4b.362 (a), (b), and (c) as in effect on December 20, 1951; or

(2) Approved under Special Civil Air Regulations SR-387, SR-389, SR-389A, or SR-389B, or under this section as in effect.

However, an airplane type listed in the following table may be operated with up to the listed number of occupants (including crewmembers) and the corresponding number of exits (including emergency exits and doors) approved for the emergency exit of passengers or with an occupant-exit configuration approved under paragraph (b) or (c) of this section.

Airplane type	Maximum number of occupants including all crewmembers	Corresponding number of exits authorized for passenger use

B-307	61	4
B-377	96	9
C-46	67	4
CV-240	53	6
CV-340 and CV-440	53	6
DC-3	35	4
DC-3 (Super)	39	5
DC-4	86	5
DC-6	87	7
DC-6B	112	11
L-18	17	3
L-049, L-649, L-749	87	7
L-1049 series	96	9
M-202	53	6
M-404	53	7
Viscount 700 series	53	7

(b) Occupants in addition to those authorized under paragraph (a) of this section may be carried as follows:

(1) For each additional floor-level exit at least 24 inches wide by 48 inches high, with an unobstructed 20-inch-wide access aisleway between the exit and the main passenger aisle, 12 additional occupants.

(2) For each additional window exit located over a wing that meets the requirements of the airworthiness standards under which the airplane was type certificated or that is large enough to inscribe an ellipse 19x26 inches, eight additional occupants.

(3) For each additional window exit that is not located over a wing but that otherwise complies with paragraph (b) (2) of this section, five additional occupants.

(4) For each airplane having a ratio (as computed from the table in paragraph (a) of this section) of maximum number of occupants to number of exits greater than 14:1, and for each airplane that does not have at least one full-size, door-type exit in the side of the fuselage in the rear part of the cabin, the first additional exit must be a floor-level exit that complies with paragraph (b) (1) of this section and must be located in the rear part of the cabin on the opposite side of the fuselage from the main entrance door. However, no person may operate an airplane under this section carrying more than 115 occupants unless there is such an exit on each side of the fuselage in the rear part of the cabin.

(c) No person may eliminate any approved exit except in accordance with the following:

(1) The previously authorized maximum number of occupants must be reduced by the same number of additional occupants authorized for that exit under this section.

(2) Exits must be eliminated in accordance with the following priority schedule: First, non-over-wing window exits; second, over-wing window exits; third, floor-level exits located in the forward part of the cabin; and fourth, floor-level exits located in the rear of the cabin.

(3) At least one exit must be retained on each side of the fuselage regardless of the number of occupants.

(4) No person may remove any exit that would result in a ratio of maximum number of occupants to approved exits greater than 14:1.

(d) This section does not relieve any person operating under part 121 of this chapter from complying with Sec. 121.291.

Sec. 91.609 Flight recorders and cockpit voice recorders.

(a) No holder of an air carrier operating certificate or an operating certificate may conduct any operation under this part with an aircraft listed in the holder's operations specifications or current list of aircraft used in air transportation unless that aircraft complies with any applicable flight recorder and cockpit voice recorder requirements of the part under which its certificate is issued except that the operator may--

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft; or

(4) Ferry a newly acquired aircraft from the place where possession of it is taken to a place where the flight recorder or cockpit voice recorder is to be installed.

(b) Notwithstanding paragraphs (c) and (e) of this section, an operator other than the holder of an air carrier or a commercial operator certificate may--

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft;

(4) Ferry a newly acquired aircraft from a place where possession of it was taken to a place where the flight recorder or cockpit voice recorder is to be installed; or

(5) Operate an aircraft:

(i) For not more than 15 days while the flight recorder and/or cockpit voice recorder is inoperative and/or removed for repair provided that the aircraft maintenance records contain an entry that indicates the date of failure, and a placard is located in view of the pilot to show that the flight recorder or cockpit voice recorder is inoperative.

(ii) For not more than an additional 15 days, provided that the requirements in paragraph (b) (5) (i) are met and that a certificated pilot, or a certificated person authorized to return an aircraft to service under Sec. 43.7 of this chapter, certifies in the aircraft maintenance records that additional time is required to complete repairs or obtain a replacement unit.

(c) No person may operate a U.S. civil registered, multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration, excluding any pilot seats of 10 or more that has been manufactured after October 11, 1991, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium, that are capable of recording the data specified in appendix E to this part, for an airplane, or appendix F to this part, for a rotorcraft, of this part within the range, accuracy, and recording interval specified, and that are capable of retaining no less than 8 hours of aircraft operation.

(d) Whenever a flight recorder, required by this section, is installed, it must be operated continuously from the instant the airplane begins the takeoff roll or the rotorcraft begins lift-off until the airplane has completed the landing roll or the rotorcraft has landed at its destination.

(e) Unless otherwise authorized by the Administrator, after October 11, 1991, no person may operate a U.S. civil registered multiengine, turbine-

powered airplane or rotorcraft having a passenger seating configuration of six passengers or more and for which two pilots are required by type certification or operating rule unless it is equipped with an approved cockpit voice recorder that:

(1) Is installed in compliance with Sec. 23.1457(a) (1) and (2), (b), (c), (d), (e), (f), and (g); Sec. 25.1457(a) (1) and (2), (b), (c), (d), (e), (f), and (g); Sec. 27.1457(a) (1) and (2), (b), (c), (d), (e), (f), and (g); or Sec. 29.1457(a) (1) and (2), (b), (c), (d), (e), (f), and (g) of this chapter, as applicable; and

(2) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(f) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that at any time during the operation of the recorder, information recorded more than 15 minutes earlier may be erased or otherwise obliterated.

(g) In the event of an accident or occurrence requiring immediate notification to the National Transportation Safety Board under part 830 of its regulations that results in the termination of the flight, any operator who has installed approved flight recorders and approved cockpit voice recorders shall keep the recorded information for at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with the investigation under part 830. The Administrator does not use the cockpit voice recorder record in any civil penalty or certificate action.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34318, Aug. 18, 1989, as amended by Amdt. 91-226, 56 FR 51621, Oct. 11, 1991; Amdt. 91-228, 57 FR 19353, May 5, 1992]

#### Sec. 91.611 Authorization for ferry flight with one engine inoperative

(a) General. The holder of an air carrier operating certificate or an operating certificate issued under Part 125 may conduct a ferry flight of a four-engine airplane or a turbine-engine-powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine subject to the following:

(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with paragraph (b) or (c) of this section, as appropriate. However, each operator who before November 19, 1966, has shown that a model of airplane with an engine inoperative is satisfactory for safe flight by a test flight conducted in accordance with performance data contained in the applicable Airplane Flight Manual under paragraph (a) (2) of this section need not repeat the test flight for that model.

(2) The approved Airplane Flight Manual contains the following performance data and the flight is conducted in accordance with that data:

- (i) Maximum weight.
- (ii) Center of gravity limits.
- (iii) Configuration of the inoperative propeller (if applicable).
- (iv) Runway length for takeoff (including temperature accountability).
- (v) Altitude range.
- (vi) Certificate limitations.
- (vii) Ranges of operational limits.
- (viii) Performance information.
- (ix) Operating procedures.

(3) The operator has FAA approved procedures for the safe operation of the airplane, including specific requirements for--

(i) Limiting the operating weight on any ferry flight to the minimum necessary for the flight plus the necessary reserve fuel load;

(ii) A limitation that takeoffs must be made from dry runways unless, based on a showing of actual operating takeoff techniques on wet runways with one engine inoperative, takeoffs with full controllability from wet runways have been approved for the specific model aircraft and included in the Airplane Flight Manual;

(iii) Operations from airports where the runways may require a takeoff or approach over populated areas; and

(iv) Inspection procedures for determining the operating condition of the operative engines.

(4) No person may take off an airplane under this section if--

(i) The initial climb is over thickly populated areas; or

(ii) Weather conditions at the takeoff or destination airport are less than those required for VFR flight.

(5) Persons other than required flight crewmembers shall not be carried during the flight.

(6) No person may use a flight crewmember for flight under this section unless that crewmember is thoroughly familiar with the operating procedures for one-engine inoperative ferry flight contained in the certificate holder's manual and the limitations and performance information in the Airplane Flight Manual.

(b) Flight tests: reciprocating-engine-powered airplanes. The airplane performance of a reciprocating-engine-powered airplane with one engine inoperative must be determined by flight test as follows:

(1) A speed not less than 1.3 VS1 must be chosen at which the airplane may be controlled satisfactorily in a climb with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator and with all other engines operating at the maximum power determined in paragraph (b) (3) of this section.

(2) The distance required to accelerate to the speed listed in paragraph (b) (1) of this section and to climb to 50 feet must be determined with--

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator; and

(iii) The other engines operating at not more than maximum power established under paragraph (b) (3) of this section.

(3) The takeoff, flight and landing procedures, such as the approximate trim settings, method of power application, maximum power, and speed must be established.

(4) The performance must be determined at a maximum weight not greater than the weight that allows a rate of climb of at least 400 feet per minute in the en route configuration set forth in Sec. 25.67(d) of this chapter in effect on January 31, 1977, at an altitude of 5,000 feet.

(5) The performance must be determined using temperature accountability for the takeoff field length, computed in accordance with Sec. 25.61 of this chapter in effect on January 31, 1977.

(c) Flight tests: Turbine-engine-powered airplanes. The airplane performance of a turbine-engine-powered airplane with one engine inoperative must be determined by flight tests, including at least three takeoff tests, in accordance with the following:

(1) Takeoff speeds VR and V2, not less than the corresponding speeds under which the airplane was type certificated under Sec. 25.107 of this chapter, must be chosen at which the airplane may be controlled satisfactorily with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator, if applicable) and with all other engines operating at not more than the power selected for type certification as set forth in Sec. 25.101 of this chapter.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate and climb to the 35-foot height at V2 speed (including

any additional speed increment obtained in the tests) multiplied by 115 percent and determined with--

- (i) The landing gear extended;
  - (ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator (if applicable); and
  - (iii) The other engine operating at not more than the power selected for type certification as set forth in Sec. 25.101 of this chapter.
- (3) The takeoff, flight, and landing procedures such as the approximate trim setting, method of power application, maximum power, and speed must be established. The airplane must be satisfactorily controllable during the entire takeoff run when operated according to these procedures.
- (4) The performance must be determined at a maximum weight not greater than the weight determined under Sec. 25.121(c) of this chapter but with--
- (i) The actual steady gradient of the final takeoff climb requirement not less than 1.2 percent at the end of the takeoff path with two critical engines inoperative; and
  - (ii) The climb speed not less than the two-engine inoperative trim speed for the actual steady gradient of the final takeoff climb prescribed by paragraph (c)(4)(i) of this section.
- (5) The airplane must be satisfactorily controllable in a climb with two critical engines inoperative. Climb performance may be shown by calculations based on, and equal in accuracy to, the results of testing.
- (6) The performance must be determined using temperature accountability for takeoff distance and final takeoff climb computed in accordance with Sec. 25.101 of this chapter.

For the purpose of paragraphs (c)(4) and (5) of this section, "two critical engines" means two adjacent engines on one side of an airplane with four engines, and the center engine and one outboard engine on an airplane with three engines.

#### Sec. 91.613 Materials for compartment interiors.

No person may operate an airplane that conforms to an amended or supplemental type certificate issued in accordance with SFAR No. 41 for a maximum certificated takeoff weight in excess of 12,500 pounds unless within 1 year after issuance of the initial airworthiness certificate under that SFAR the airplane meets the compartment interior requirements set forth in Sec. 25.853 (a), (b), (b-1), (b-2), and (b-3) of this chapter in effect on September 26, 1978.

Secs. 91.615--91.699 [Reserved]

## Persons on Board Such Aircraft

### Sec. 91.701 Applicability.

(a) This subpart applies to the operations of civil aircraft of U.S. registry outside of the United States and the operations of foreign civil aircraft within the United States.

(b) Section 91.702 of this subpart also applies to each person on board an aircraft operated as follows:

(1) A U.S. registered civil aircraft operated outside the United States;

(2) Any aircraft operated outside the United States--

(i) That has its next scheduled destination or last place of departure in the United States if the aircraft next lands in the United States; or

(ii) If the aircraft lands in the United States with the individual still on the aircraft regardless of whether it was a scheduled or otherwise planned landing site.

[Amdt. 91-257, 64 FR 1079, Jan. 7, 1999; 64 FR 7066, Feb. 12, 1999]

### Sec. 91.702 Persons on board.

Section 91.11 of this part (Prohibitions on interference with crewmembers) applies to each person on board an aircraft.

[Amdt. 91-257, 64 FR 1079, Jan. 7, 1998; 64 FR 7066, Feb. 12, 1999]

### Sec. 91.703 Operations of civil aircraft of U.S. registry outside of the United States.

(a) Each person operating a civil aircraft of U.S. registry outside of the United States shall--

(1) When over the high seas, comply with annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with Secs. 91.117(c), 91.127, 91.129, and 91.131;

(2) When within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force;

(3) Except for Secs. 91.307(b), 91.309, 91.323, and 91.711, comply with this part so far as it is not inconsistent with applicable regulations of the foreign country where the aircraft is operated or annex 2 of the Convention on International Civil Aviation; and

(4) When operating within airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace, comply with Sec. 91.705. When operating within airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace, comply with Sec. 91.706.

(b) Annex 2 to the Convention on International Civil Aviation, Ninth Edition--July 1990, with Amendments through Amendment 32 effective February 19, 1996, to which reference is made in this part, is incorporated into this part and made a part hereof as provided in 5 U.S.C. Sec. 552 and pursuant to 1 CFR part 51. Annex 2 (including a complete historic file of changes thereto) is available for public inspection at the Rules Docket, AGC-200, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC. In addition, Annex 2 may be purchased from

the International Civil Aviation Organization (Attention: Distribution Officer), P.O. Box 400, Succursale, Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2.

[Dkt. 18334, 54 FR 34320, Aug., 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991; Amdt. 91-254, 62 FR 17487, Apr. 9, 1997]

Sec. 91.705 Operations within airspace designated as Minimum Navigation Performance Specification Airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of U.S. registry in airspace designated as Minimum Navigation Performance Specifications airspace unless--

(1) The aircraft has approved navigation performance capability that complies with the requirements of appendix C of this part; and

(2) The operator is authorized by the Administrator to perform such operations.

(b) The Administrator may authorize a deviation from the requirements of this section in accordance with Section 3 of appendix C to this part.

[62 FR 17487, Apr. 9, 1997]

Sec. 91.706 Operations within airspace designed as Reduced Vertical Separation Minimum Airspace.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft of U.S. registry in airspace designated as Reduced Vertical Separation Minimum (RVSM) airspace unless:

(1) The operator and the operator's aircraft comply with the requirements of appendix G of this part; and

(2) The operator is authorized by the Administrator to conduct such operations.

(b) The Administrator may authorize a deviation from the requirements of this section in accordance with Section 5 of appendix G to this part.

[62 FR 17487, Apr. 9, 1997]

Sec. 91.707 Flights between Mexico or Canada and the United States.

Unless otherwise authorized by ATC, no person may operate a civil aircraft between Mexico or Canada and the United States without filing an IFR or VFR flight plan, as appropriate.

Sec. 91.709 Operations to Cuba.

No person may operate a civil aircraft from the United States to Cuba unless--

(a) Departure is from an international airport of entry designated in Sec. 6.13 of the Air Commerce Regulations of the Bureau of Customs (19 CFR 6.13); and

(b) In the case of departure from any of the 48 contiguous States or the District of Columbia, the pilot in command of the aircraft has filed--

(1) A DVFR or IFR flight plan as prescribed in Sec. 99.11 or Sec. 99.13 of this chapter; and

(2) A written statement, within 1 hour before departure, with the Office of Immigration and Naturalization Service at the airport of departure, containing--

(i) All information in the flight plan;

(ii) The name of each occupant of the aircraft;

(iii) The number of occupants of the aircraft; and

(iv) A description of the cargo, if any.

This section does not apply to the operation of aircraft by a scheduled air carrier over routes authorized in operations specifications issued by the Administrator.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

Sec. 91.711 Special rules for foreign civil aircraft.

(a) General. In addition to the other applicable regulations of this part, each person operating a foreign civil aircraft within the United States shall comply with this section.

(b) VFR. No person may conduct VFR operations which require two-way radio communications under this part unless at least one crewmember of that aircraft is able to conduct two-way radio communications in the English language and is on duty during that operation.

(c) IFR. No person may operate a foreign civil aircraft under IFR unless--

(1) That aircraft is equipped with--

(i) Radio equipment allowing two-way radio communication with ATC when it is operated in controlled airspace; and

(ii) Radio navigational equipment appropriate to the navigational facilities to be used;

(2) Each person piloting the aircraft--

(i) Holds a current United States instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with the United States en route, holding, and letdown procedures; and

(3) At least one crewmember of that aircraft is able to conduct two-way radiotelephone communications in the English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving the United States.

(d) Over water. Each person operating a foreign civil aircraft over water off the shores of the United States shall give flight notification or file a flight plan in accordance with the Supplementary Procedures for the ICAO region concerned.

(e) Flight at and above FL 240. If VOR navigational equipment is required under paragraph (c) (1) (ii) of this section, no person may operate a foreign

civil aircraft within the 50 States and the District of Columbia at or above FL 240, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VORTAC facilities to be used. When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATC immediately and may then continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made. However, paragraph (e) of this section does not apply to foreign civil aircraft that are not equipped with DME when operated for the following purposes and if ATC is notified prior to each takeoff:

(1) Ferry flights to and from a place in the United States where repairs or alterations are to be made.

(2) Ferry flights to a new country of registry.

(3) Flight of a new aircraft of U.S. manufacture for the purpose of--

(i) Flight testing the aircraft;

(ii) Training foreign flight crews in the operation of the aircraft; or

(iii) Ferrying the aircraft for export delivery outside the United States.

(4) Ferry, demonstration, and test flight of an aircraft brought to the United States for the purpose of demonstration or testing the whole or any part thereof.

[Dkt. 18334, 54 FR 34320, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991]

#### Sec. 91.713 Operation of civil aircraft of Cuban registry.

No person may operate a civil aircraft of Cuban registry except in controlled airspace and in accordance with air traffic clearance or air traffic control instructions that may require use of specific airways or routes and landings at specific airports.

#### Sec. 91.715 Special flight authorizations for foreign civil aircraft.

(a) Foreign civil aircraft may be operated without airworthiness certificates required under Sec. 91.203 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization must be made to the Flight Standards Division Manager or Aircraft Certification Directorate Manager of the FAA region in which the applicant is located or to the region within which the U.S. point of entry is located. However, in the case of an aircraft to be operated in the U.S. for the purpose of demonstration at an airshow, the application may be made to the Flight Standards Division Manager or Aircraft Certification Directorate Manager of the FAA region in which the airshow is located.

(b) The Administrator may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the Administrator considers necessary for safe operation in the U.S. airspace.

(c) No person may operate a foreign civil aircraft under a special flight authorization unless that operation also complies with part 375 of the Special Regulations of the Department of Transportation (14 CFR part 375).

(Approved by the Office of Management and Budget under OMB control number

2120-0005)

[Doc. No. 18334, 54 FR 34292, Aug. 18, 1989, as amended by Amdt. 91-212, 54 FR 39293, Sept. 25, 1989]

Secs. 91.717--91.799 [Reserved]

#### Subpart I--Operating Noise Limits

Sec. 91.801 Applicability: Relation to Part 36.

(a) This subpart prescribes operating noise limits and related requirements that apply, as follows, to the operation of civil aircraft in the United States.

(1) Sections 91.803, 91.805, 91.807, 91.809, and 91.811 apply to civil subsonic turbojet airplanes with maximum weights of more than 75,000 pounds and--

(i) If U.S. registered, that have standard airworthiness certificates; or

(ii) If foreign registered, that would be required by this chapter to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane were it registered in the United States. Those sections apply to operations to or from airports in the United States under this part and parts 121, 125, 129, and 135 of this chapter.

(2) Section 91.813 applies to U.S. operators of civil subsonic turbojet airplanes covered by this subpart. This section applies to operators operating to or from airports in the United States under this part and parts 121, 125, and 135, but not to those operating under part 129 of this chapter.

(3) Sections 91.803, 91.819, and 91.821 apply to U.S.-registered civil supersonic airplanes having standard airworthiness certificates and to foreign-registered civil supersonic airplanes that, if registered in the United States, would be required by this chapter to have U.S. standard airworthiness certificates in order to conduct the operations intended for the airplane. Those sections apply to operations under this part and under parts 121, 125, 129, and 135 of this chapter.

(b) Unless otherwise specified, as used in this subpart "part 36" refers to 14 CFR part 36, including the noise levels under appendix C of that part, notwithstanding the provisions of that part excepting certain airplanes from the specified noise requirements. For purposes of this subpart, the various stages of noise levels, the terms used to describe airplanes with respect to those levels, and the terms "subsonic airplane" and "supersonic airplane" have the meanings specified under part 36 of this chapter. For purposes of this subpart, for subsonic airplanes operated in foreign air commerce in the United States, the Administrator may accept compliance with the noise requirements under annex 16 of the International Civil Aviation Organization when those requirements have been shown to be substantially compatible with, and achieve results equivalent to those achievable under, part 36 for that airplane. Determinations made under these provisions are subject to the limitations of Sec. 36.5 of this chapter as if those noise levels were part 36 noise levels.

(c) Sections 91.851 through 91.877 of this subpart prescribe operating noise limits and related requirements that apply to any civil subsonic turbojet airplane with a maximum certificated weight of more than 75,000 pounds operating to or from an airport in the 48 contiguous United States and the District of Columbia under this part, part 121, 125, 129, or 135 of this chapter on and after September 25, 1991.

(d) Section 91.877 prescribes reporting requirements that apply to any civil subsonic turbojet airplane with a maximum weight of more than 75,000 pounds operated by an air carrier or foreign air carrier between the contiguous United States and the State of Hawaii, between the State of Hawaii and any point outside of the 48 contiguous United States, or between the islands of Hawaii in turnaround service, under part 121 or 129 of this chapter on or after November 5, 1990.

\$Doc. No. 18334, 54 FR 34321, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989, as amended by Amdt. 91-255, 56 FR 48658, Sept. 25, 1991; Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

#### Sec. 91.803 Part 125 operators: Designation of applicable regulations.

For airplanes covered by this subpart and operated under part 125 of this chapter, the following regulations apply as specified:

(a) For each airplane operation to which requirements prescribed under this subpart applied before November 29, 1980, those requirements of this subpart continue to apply.

(b) For each subsonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this part or part 121, 129, or 135 of this chapter, the requirements prescribed under Secs. 91.805, 91.809, 91.811, and 91.813 of this subpart apply.

(c) For each supersonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this part or part 121, 129, or 135 of this chapter, the requirements of Secs. 91.819 and 91.821 of this subpart apply.

(d) For each airplane required to operate under part 125 for which a deviation under that part is approved to operate, in whole or in part, under this part or part 121, 129, or 135 of this chapter, notwithstanding the approval, the requirements prescribed under paragraphs (a), (b), and (c) of this section continue to apply.

#### Sec. 91.805 Final compliance: Subsonic airplanes.

Except as provided in Secs. 91.809 and 91.811, on and after January 1, 1985, no person may operate to or from an airport in the United States any subsonic airplane covered by this subpart unless that airplane has been shown to comply with Stage 2 or Stage 3 noise levels under part 36 of this chapter.

Sec. 91.807 Phased compliance under Parts 121, 125, and 135: Subsonic airplanes.

(a) General. Each person operating airplanes under part 121, 125, or 135 of this chapter, as prescribed under Sec. 91.803 of this subpart, regardless of the state of registry of the airplane, shall comply with this section with respect to subsonic airplanes covered by this subpart.

(b) Compliance schedules. Except for airplanes shown to be operated in foreign air commerce under paragraph (c) of this section or covered by an exemption (including those issued under Sec. 91.811), airplanes operated by U.S. operators in air commerce in the United States must be shown to comply with Stage 2 or Stage 3 noise levels under part 36 of this chapter, in accordance with the following schedule, or they may not be operated to or from airports in the United States:

(1) By January 1, 1981--

(i) At least one quarter of the airplanes that have four engines with no bypass ratio or with a bypass ratio less than two; and

(ii) At least half of the airplanes powered by engines with any other bypass ratio or by another number of engines.

(2) By January 1, 1983--

(i) At least one-half of the airplanes that have four engines with no bypass ratio or with a bypass ratio less than two; and

(ii) All airplanes powered by engines with any other bypass ratio or by another number of engines.

(c) Apportionment of airplanes. For purposes of paragraph (b) of this section, a person operating airplanes engaged in domestic and foreign air commerce in the United States may elect not to comply with the phased schedule with respect to that portion of the airplanes operated by that person shown, under an approved method of apportionment, to be engaged in foreign air commerce in the United States.

Sec. 91.809 Replacement airplanes.

A Stage 1 airplane may be operated after the otherwise applicable compliance dates prescribed under Secs. 91.805 and 91.807 if, under an approved plan, a replacement airplane has been ordered by the operator under a binding contract as follows:

(a) For replacement of an airplane powered by two engines, until January 1, 1986, but not after the date specified in the plan, if the contract is entered into by January 1, 1983, and specifies delivery before January 1, 1986, of a replacement airplane which has been shown to comply with Stage 3 noise levels under part 36 of this chapter.

(b) For replacement of an airplane powered by three engines, until January 1, 1985, but not after the date specified in the plan, if the contract is entered into by January 1, 1983, and specifies delivery before January 1, 1985, of a replacement airplane which has been shown to comply with Stage 3 noise levels under part 36 of this chapter.

(c) For replacement of any other airplane, until January 1, 1985, but not after the date specified in the plan, if the contract specifies delivery before January 1, 1985, of a replacement airplane which--

(1) Has been shown to comply with Stage 2 or Stage 3 noise levels under part 36 of this chapter prior to issuance of an original standard airworthiness certificate; or

(2) Has been shown to comply with Stage 3 noise levels under part 36 of this chapter prior to issuance of a standard airworthiness certificate other

than original issue.

(d) Each operator of a Stage 1 airplane for which approval of a replacement plan is requested under this section shall submit to the Director, Office of Environment and Energy, an application constituting the proposed replacement plan (or revised plan) that contains the information specified under this paragraph and which is certified (under penalty of 18 U.S.C. 1001) as true and correct. Each application for approval must provide information corresponding to that specified in the contract, upon which the FAA may rely in considering its approval, as follows:

(1) Name and address of the applicant. .

(2) Aircraft type and model and registration number for each airplane to be replaced under the plan.

(3) Aircraft type and model of each replacement airplane.

(4) Scheduled dates of delivery and introduction into service of each replacement airplane.

(5) Names and addresses of the parties to the contract and any other persons who may effectively cancel the contract or otherwise control the performance of any party.

(6) Information specifying the anticipated disposition of the airplanes to be replaced.

(7) A statement that the contract represents a legally enforceable, mutual agreement for delivery of an eligible replacement airplane.

(8) Any other information or documentation requested by the Director, Office of Environment and Energy, reasonably necessary to determine whether the plan should be approved.

#### Sec. 91.811 Service to small communities exemption: Two-engine, subsonic airplanes.

(a) A Stage 1 airplane powered by two engines may be operated after the compliance dates prescribed under Secs. 91.805, 91.807, and 91.809 when, with respect to that airplane, the Administrator issues an exemption to the operator from the noise level requirements under this subpart. Each exemption issued under this section terminates on the earliest of the following dates:

(1) For an exempted airplane sold, or otherwise disposed of, to another person on or after January 1, 1983, on the date of delivery to that person.

(2) For an exempted airplane with a seating configuration of 100 passenger seats or less, on January 1, 1988.

(3) For an exempted airplane with a seating configuration of more than 100 passenger seats, on January 1, 1985.

(b) For the purpose of this section, the seating configuration of an airplane is governed by that shown to exist on December 1, 1979, or an earlier date established for that airplane by the Administrator.

#### Sec. 91.813 Compliance plans and status: U.S. operations of subsonic airplanes.

(a) Each U.S. operator of a civil subsonic airplane covered by this subpart (regardless of the state of registry) shall submit to the Director, Office of Environment and Energy, in accordance with this section, the operator's

current compliance status and plan for achieving and maintaining compliance with the applicable noise level requirements of this subpart. If appropriate, an operator may substitute for the required plan a notice, certified as true (under penalty of 18 U.S.C. 1001) by that operator, that no change in the plan or status of any airplane affected by the plan has occurred since the date of the plan most recently submitted under this section.

(b) Each compliance plan, including each revised plan, must contain the information specified under paragraph (c) of this section for each airplane covered by this section that is operated by the operator. Unless otherwise approved by the Administrator, compliance plans must provide the required plan and status information as it exists on the date 30 days before the date specified for submission of the plan. Plans must be certified by the operator as true and complete (under penalty of 18 U.S.C. 1001) and be submitted for each airplane covered by this section on or before 90 days after initially commencing operation of airplanes covered by this section, whichever is later, and thereafter--

(1) Thirty days after any change in the operator's fleet or compliance planning decisions that has a separate or cumulative effect on 10 percent or more of the airplanes in either class of airplanes covered by Sec. 91.807(b); and

(2) Thirty days after each compliance date applicable to that airplane under this subpart, and annually thereafter through 1985, or until any later date for that airplane prescribed under this subpart, on the anniversary of that submission date, to show continuous compliance with this subpart.

(c) Each compliance plan submitted under this section must identify the operator and include information regarding the compliance plan and status for each airplane covered by the plan as follows:

(1) Name and address of the airplane operator.

(2) Name and telephone number of the person designated by the operator to be responsible for the preparation of the compliance plan and its submission.

(3) The total number of airplanes covered by this section and in each of the following classes and subclasses:

(i) For airplanes engaged in domestic air commerce--

(A) Airplanes powered by four turbojet engines with no bypass ratio or with a bypass ratio less than two;

(B) Airplanes powered by engines with any other bypass ratio or by another number of engines; and

(C) Airplanes covered by an exemption issued under Sec. 91.811 of this subpart.

(ii) For airplanes engaged in foreign air commerce under an approved apportionment plan--

(A) Airplanes powered by four turbojet engines with no bypass ratio or with a bypass ratio less than two;

(B) Airplanes powered by engines with any other bypass ratio or by another number of engines; and

(C) Airplanes covered by an exemption issued under Sec. 91.811 of this subpart.

(4) For each airplane covered by this section--

(i) Aircraft type and model;

(ii) Aircraft registration number;

(iii) Aircraft manufacturer serial number;

(iv) Aircraft powerplant make and model;

(v) Aircraft year of manufacture;

(vi) Whether part 36 noise level compliance has been shown, "Yes/No";

(vii) The appropriate code prescribed under paragraph (c)(5) of this section which indicates the acoustical technology installed, or to be installed, on the airplane;

(viii) For airplanes on which acoustical technology has been or will be applied, following the appropriate code entry, the actual or scheduled month and year of installation on the airplane;

(ix) For DC-8 and B-707 airplanes operated in domestic U.S. air commerce which have been or will be retired from service in the United States without replacement between January 24, 1977, and January 1, 1985, the appropriate code prescribed under paragraph (c) (5) of this section followed by the actual or scheduled month and year of retirement of the airplane from service;

(x) For DC-8 and B-707 airplanes operated in foreign air commerce in the United States which have been or will be retired from service in the United States without replacement between April 14, 1980, and January 1, 1985, the appropriate code prescribed under paragraph (c) (5) of this section followed by the actual or scheduled month and year of retirement of the airplane from service;

(xi) For airplanes covered by an approved replacement plan under Sec. 91.807(c) of this subpart, the appropriate code prescribed under paragraph (c) (5) of this section followed by the scheduled month and year for replacement of the airplane;

(xii) For airplanes designated as "engaged in foreign commerce" in accordance with an approved method of apportionment under Sec. 91.807(c) of this subpart, the appropriate code prescribed under paragraph (c) (5) of this section;

(xiii) For airplanes covered by an exemption issued to the operator granting relief from noise level requirements of this subpart, the appropriate code prescribed under paragraph (c) (5) of this section followed by the actual or scheduled month and year of expiration of the exemption and the appropriate code and applicable dates which indicate the compliance strategy planned or implemented for the airplane;

(xiv) For all airplanes covered by this section, the number of spare shipsets of acoustical components needed for continuous compliance and the number available on demand to the operator in support of those airplanes; and

(xv) For airplanes for which none of the other codes prescribed under paragraph (c) (5) of this section describes either the technology applied or to be applied to the airplane in accordance with the certification requirements under Parts 21 and 36 of this chapter, or the compliance strategy or methodology following the code "OTH," enter the date of any certificate action and attach an addendum to the plan explaining the nature and the extent of the certificated technology, strategy, or methodology employed, with reference to the type certificate documentation.

#### (5) Table of Acoustical Technology/Strategy Codes

Code	Airplane type/model	Certificate technology
A	B-707-120B; B-707-320B/C; B-720B	Quiet nacelles + 1-ring.
B	B-727-100	Double wall fan duct treatment.
C	B-727-200	Double wall fan duct treatment (pre-January 1977 installations and amended type certificate).
D	B-727-200; B-737-100; B-737-200	Quiet nacelles + double wall fan duct treatment.
E	B-747-100 (pre-December 1971); B- 747-200 (pre-December 1971)	Fixed lip inlets + sound absorbing material treatment.
F	DC-8	New extended inlet and bullet with treatment + fan duct treatment areas.
G	DC-9	P-36 sound absorbing material treatment kit.
H	BAC-111-200	Silencer kit (BAC Acoustic Report 522).
I	BAC-111-400	Silencer kit (BAC Acoustic Report 598).
J	B-707; DC-8	Reengined with high bypass ratio

turbojet engines + quiet nacelles  
(if certificated under stage 3  
noise level requirements).

REP--For airplanes covered by an approved replacement plan under Sec. 91.807(c) of this subpart.

EFC--For airplanes designated as "engaged in foreign commerce" in accordance with an approved method of apportionment under Sec. 91.811 of this subpart.

RET--For DC-8 and B-707 airplanes operated in domestic U.S. air commerce and retired from service in the United States without replacement between January 24, 1977, and January 1, 1985. RFC--For DC-8 and B-707 airplanes operated by U.S. operators in foreign air commerce in the United States and retired from service in the United States without replacement between April 14, 1980, and January 1, 1985.

EXD--For airplanes exempted from showing compliance with the noise level requirements of this subpart.

OTH--For airplanes for which no other prescribed code describes either the certificated technology applied or to be applied to the airplane, or the compliance strategy or methodology. (An addendum must explain the nature and extent of technology, strategy, or methodology and reference the type certificate documentation.)

#### Sec. 91.815 Agricultural and fire fighting airplanes: Noise operating limitations.

(a) This section applies to propeller-driven, small airplanes having standard airworthiness certificates that are designed for "agricultural aircraft operations" (as defined in Sec. 137.3 of this chapter, as effective on January 1, 1966) or for dispensing fire fighting materials.

(b) If the Airplane Flight Manual, or other approved manual material information, markings, or placards for the airplane indicate that the airplane has not been shown to comply with the noise limits under part 36 of this chapter, no person may operate that airplane, except--

(1) To the extent necessary to accomplish the work activity directly associated with the purpose for which it is designed;

(2) To provide flight crewmember training in the special purpose operation for which the airplane is designed; and

(3) To conduct "nondispensing aerial work operations" in accordance with the requirements under Sec. 137.29(c) of this chapter.

#### Sec. 91.817 Civil aircraft sonic boom.

(a) No person may operate a civil aircraft in the United States at a true flight Mach number greater than 1 except in compliance with conditions and limitations in an authorization to exceed Mach 1 issued to the operator under appendix B of this part.

(b) In addition, no person may operate a civil aircraft for which the maximum operating limit speed MM0 exceeds a Mach number of 1, to or from an airport in the United States, unless--

(1) Information available to the flight crew includes flight limitations that ensure that flights entering or leaving the United States will not cause a sonic boom to reach the surface within the United States; and

(2) The operator complies with the flight limitations prescribed in paragraph (b) (1) of this section or complies with conditions and limitations in an authorization to exceed Mach 1 issued under appendix B of this part.

(Approved by the Office of Management and Budget under OMB control number 2120-0005)

#### Sec. 91.819 Civil supersonic airplanes that do not comply with Part 36

(a) Applicability. This section applies to civil supersonic airplanes that have not been shown to comply with the Stage 2 noise limits of Part 36 in effect on October 13, 1977, using applicable trade-off provisions, and that are operated in the United States, after July 31, 1978.

(b) Airport use. Except in an emergency, the following apply to each person who operates a civil supersonic airplane to or from an airport in the United States:

(1) Regardless of whether a type design change approval is applied for under part 21 of this chapter, no person may land or take off an airplane covered by this section for which the type design is changed, after July 31, 1978, in a manner constituting an "acoustical change" under Sec. 21.93 unless the acoustical change requirements of part 36 are complied with.

(2) No flight may be scheduled, or otherwise planned, for takeoff or landing after 10 p.m. and before 7 a.m. local time.

#### Sec. 91.821 Civil supersonic airplanes: Noise limits.

Except for Concorde airplanes having flight time before January 1, 1980, no person may operate in the United States, a civil supersonic airplane that does not comply with Stage 2 noise limits of part 36 in effect on October 13, 1977, using applicable trade-off provisions.

#### Secs. 91.823--91.849 [Reserved]

#### Sec. 91.851 Definitions.

For the purposes of Sec. 91.851 through 91.877 of this subpart:  
Contiguous United States means the area encompassed by the 48 contiguous

United States and the District of Columbia.

Fleet means those civil subsonic turbojet airplanes with a maximum certificated weight of more than 75,000 pounds that are listed on an operator's operations specifications as eligible for operation in the contiguous United States.

Import means a change in ownership of an airplane from a non-U.S. person to a U.S. person when the airplane is brought into the United States for operation.

Operations specifications means an enumeration of airplanes by type, model, series, and serial number operated by the operator or foreign air carrier on a given day, regardless of how or whether such airplanes are formally listed or designated by the operator.

Owner means any person that has indicia of ownership sufficient to register the airplane in the United States pursuant to part 47 of this chapter.

New entrant means an air carrier or foreign air carrier that, on or before November 5, 1990, did not conduct operations under part 121, 125, 129, or 135 of this chapter using an airplane covered by this subpart to or from any airport in the contiguous United States, but that initiates such operation after that date.

Stage 2 noise levels mean the requirements for Stage 2 noise levels as defined in part 36 of this chapter in effect on November 5, 1990.

Stage 3 noise levels mean the requirements for Stage 3 noise levels as defined in part 36 of this chapter in effect on November 5, 1990.

Stage 2 airplane means a civil subsonic turbojet airplane with a maximum certificated weight of 75,000 pounds or more that complies with Stage 2 noise levels as defined in part 36 of this chapter.

Stage 3 airplane means a civil subsonic turbojet airplane with a maximum certificated weight of 75,000 pounds or more that complies with Stage 3 noise levels as defined in part 36 of this chapter.

[Amdt. 91-225, 56 FR 48658, Sept. 25, 1991, as amended by Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

Sec. 91.853 Final compliance: Civil subsonic airplanes.

Except as provided in Sec. 91.873, after December 31, 1999, no person shall operate to or from any airport in the contiguous United States any airplane subject to Sec. 91.801(c) of this subpart, unless that airplane has been shown to comply with Stage 3 noise levels.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48658, Sept. 25, 1991]

Sec. 91.855 Entry and nonaddition rule.

No person may operate any airplane subject to Sec. 91.801(c) of this subpart to or from an airport in the contiguous United States unless one or more of the following apply:

(a) The airplane complies with Stage 3 noise levels.

(b) The airplane complies with Stage 2 noise levels and was owned by a U.S. person on and since November 5, 1990. Stage 2 airplanes that meet these criteria and are leased to foreign airlines are also subject to the return provisions of paragraph (e) of this section.

(c) The airplane complies with Stage 2 noise levels, is owned by a non-U.S. person, and is the subject of a binding lease to a U.S. person effective before and on September 25, 1991. Any such airplane may be operated for the term of the lease in effect on that date, and any extensions thereof provided for in that lease.

(d) The airplane complies with Stage 2 noise levels and is operated by a foreign air carrier.

(e) The airplane complies with Stage 2 noise levels and is operated by a foreign operator other than for the purpose of foreign air commerce.

(f) The airplane complies with Stage 2 noise levels and--

(1) On November 5, 1990, was owned by:

(i) A corporation, trust, or partnership organized under the laws of the United States or any State (including individual States, territories, possessions, and the District of Columbia);

(ii) An individual who is a citizen of the United States; or

(iii) An entity owned or controlled by a corporation, trust, partnership, or individual described in paragraph (f)(1)(i) or (ii) of this section; and

(2) Enters into the United States not later than 6 months after the expiration of a lease agreement (including any extensions thereof) between an owner described in paragraph (f)(1) of this section and a foreign airline.

(g) The airplane complies with Stage 2 noise levels and was purchased by the importer under a written contract executed before November 5, 1990.

(h) Any Stage 2 airplane described in this section is eligible for operation in the contiguous United States only as provided under Sec. 91.865 or 91.867.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48658, Sept. 25, 1991; 56 FR 51167, Oct. 10, 1991]

Sec. 91.857 Stage 2 operations outside of the 48 contiguous United States, and authorization for maintenance.

An operator of a Stage 2 airplane that is operating only between points outside the contiguous United States on or after November 5, 1990, shall--

(a) Include in its operations specifications a statement that such airplane may not be used to provide air transportation to or from any airport in the contiguous United States.

(b) Obtain a special flight authorization to operate that airplane into the contiguous United States for the purpose of maintenance. The special flight authorization must include a statement indicating that this regulation is the basis for the authorization.

[Amdt. 91-225, 56 FR 48658, Sept. 25, 1991, as amended by Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

Sec. 91.859 Modification to meet Stage 3 noise levels.

For an airplane subject to Sec. 91.801(c) of this subpart and otherwise prohibited from operation to or from an airport in the contiguous United States by Sec. 91.855, any person may apply for a special flight authorization for that airplane to operate in the contiguous United States for the purpose of obtaining modifications to meet Stage 3 noise levels.

Sec. 91.861 Base level.

(a) U.S. Operators. The base level of a U.S. operator is equal to the number of owned or leased Stage 2 airplanes subject to Sec. 91.801(c) of this subpart that were listed on that operator's operations specifications for operations to or from airports in the contiguous United States on any one day selected by the operator during the period January 1, 1990, through July 1, 1991, plus or minus adjustments made pursuant to paragraphs (a) (1) and (2).

(1) The base level of a U.S. operator shall be increased by a number equal to the total of the following--

(i) The number of Stage 2 airplanes returned to service in the United States pursuant to Sec. 91.855(f);

(ii) The number of Stage 2 airplanes purchased pursuant to Sec. 91.855(g); and

(iii) Any U.S. operator base level acquired with a Stage 2 airplane transferred from another person under Sec. 91.863.

(2) The base level of a U.S. operator shall be decreased by the amount of U.S. operator base level transferred with the corresponding number of Stage 2 airplanes to another person under Sec. 91.863.

(b) Foreign air carriers. The base level of a foreign air carrier is equal to the number of owned or leased Stage 2 airplanes that were listed on that carrier's U.S. operations specifications on any one day during the period January 1, 1990, through July 1, 1991, plus or minus any adjustments to the base levels made pursuant to paragraphs (b) (1) and (2).

(1) The base level of a foreign air carrier shall be increased by the amount of foreign air carrier base level acquired with a Stage 2 airplane from another person under Sec. 91.863.

(2) The base level of a foreign air carrier shall be decreased by the amount of foreign air carrier base level transferred with a Stage 2 airplane to another person under Sec. 91.863.

(c) New entrants do not have a base level.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48659, Sept. 25, 1991; 56 FR 51167, Oct. 10, 1991]

Sec. 91.863 Transfers of Stage 2 airplanes with base level.

(a) Stage 2 airplanes may be transferred with or without the corresponding amount of base level. Base level may not be transferred without the corresponding number of Stage 2 airplanes.

(b) No portion of a U.S. operator's base level established under Sec. 91.861(a) may be used for operations by a foreign air carrier. No portion of a foreign air carrier's base level established under Sec. 91.861(b) may be used for operations by a U.S. operator.

(c) Whenever a transfer of Stage 2 airplanes with base level occurs, the transferring and acquiring parties shall, within 10 days, jointly submit written notification of the transfer to the FAA, Office of Environment and Energy. Such notification shall state:

(1) The names of the transferring and acquiring parties;

(2) The name, address, and telephone number of the individual responsible for submitting the notification on behalf of the transferring and acquiring parties;

(3) The total number of Stage 2 airplanes transferred, listed by airplane

type, model, series, and serial number;

(4) The corresponding amount of base level transferred and whether it is U.S. operator or foreign air carrier base level; and

(5) The effective date of the transaction.

(d) If, taken as a whole, a transaction or series of transactions made pursuant to this section does not produce an increase or decrease in the number of Stage 2 airplanes for either the acquiring or transferring operator, such transaction or series of transactions may not be used to establish compliance with the requirements of Sec. 91.865.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48659, Sept. 25, 1991]

#### Sec. 91.865 Phased compliance for operators with base level.

Except as provided in paragraph (a) of this section, each operator that operates an airplane under part 91, 121, 125, 129, or 135 of this chapter, regardless of the national registry of the airplane, shall comply with paragraph (b) or (d) of this section at each interim compliance date with regard to its subsonic airplane fleet covered by Sec. 91.801(c) of this subpart.

(a) This section does not apply to new entrants covered by Sec. 91.867 or to foreign operators not engaged in foreign air commerce.

(b) Each operator that chooses to comply with this paragraph pursuant to any interim compliance requirement shall reduce the number of Stage 2 airplanes it operates that are eligible for operation in the contiguous United States to a maximum of:

(1) After December 31, 1994, 75 percent of the base level held by the operator;

(2) After December 31, 1996, 50 percent of the base level held by the operator;

(3) After December 31, 1998, 25 percent of the base level held by the operator.

(c) Except as provided under Sec. 91.871, the number of Stage 2 airplanes that must be reduced at each compliance date contained in paragraph (b) of this section shall be determined by reference to the amount of base level held by the operator on that compliance date, as calculated under Sec. 91.861.

(d) Each operator that chooses to comply with this paragraph pursuant to any interim compliance requirement shall operate a fleet that consists of:

(1) After December 31, 1994, not less than 55 percent Stage 3 airplanes;

(2) After December 31, 1996, not less than 65 percent Stage 3 airplanes;

(3) After December 31, 1998, not less than 75 percent Stage 3 airplanes.

(e) Calculations resulting in fractions may be rounded to permit the continued operation of the next whole number of Stage 2 airplanes.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48659, Sept. 25, 1991]

#### Sec. 91.867 Phased compliance for new entrants.

(a) New entrant U.S. air carriers.

(1) A new entrant initiating operations under part 121 of this chapter on or before December 31, 1994, may initiate service without regard to the percentage of its fleet composed of Stage 3 airplanes.

(2) After December 31, 1994, at least 25 percent of the fleet of a new

entrant must comply with Stage 3 noise levels.

(3) After December 31, 1996, at least 50 percent of the fleet of a new entrant must comply with Stage 3 noise levels.

(4) After December 31, 1998, at least 75 percent of the fleet of a new entrant must comply with Stage 3 noise levels.

(b) New entrant foreign air carriers.

(1) A new entrant foreign air carrier initiating part 129 operations on or before December 31, 1994, may initiate service without regard to the percentage of its fleet composed of Stage 3 airplanes.

(2) After December 31, 1994, at least 25 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(3) After December 31, 1996, at least 50 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(4) After December 31, 1998, at least 75 percent of the fleet on U.S. operations specifications of a new entrant foreign air carrier must comply with Stage 3 noise levels.

(c) Calculations resulting in fractions may be rounded to permit the continued operation of the next whole number of Stage 2 airplanes.

[Amdt. 91-225, 56 FR 48659, Sept. 25, 1991, as amended by Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

#### Sec. 91.869 Carry-forward compliance.

(a) Any operator that exceeds the requirements of paragraph (b) of Sec. 91.865 of this part on or before December 31, 1994, or on or before December 31, 1996, may claim a credit that may be applied at a subsequent interim compliance date.

(b) Any operator that eliminates or modifies more Stage 2 airplanes pursuant to Sec. 91.865(b) than required as of December 31, 1994, or December 31, 1996, may count the number of additional Stage 2 airplanes reduced as a credit toward--

(1) The number of Stage 2 airplanes it would otherwise be required to reduce following a subsequent interim compliance date specified in Sec. 91.865(b); or

(2) The number of Stage 3 airplanes it would otherwise be required to operate in its fleet following a subsequent interim compliance date to meet the percentage requirements specified in Sec. 91.865(d).

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48659, Sept. 25, 1991; 56 FR 51257, Oct. 10, 1991; 56 FR 65783, Dec. 18, 1991]

#### Sec. 91.871 Waivers from interim compliance requirements.

(a) Any U.S. operator or foreign air carrier subject to the requirements of Secs. 91.865 or 91.867 of this subpart may request a waiver from any individual compliance requirement.

(b) Applications must be filed with the Secretary of Transportation at least 120 days prior to the compliance date from which the waiver is requested.

(c) Applicants must show that a grant of waiver would be in the public interest, and must include in its application its plans and activities for modifying its fleet, including evidence of good faith efforts to comply with the requirements of Sec. 91.865 or Sec. 91.867. The application should

contain all information the applicant considers relevant, including, as appropriate, the following:

- (1) The applicant's balance sheet and cash flow positions;
- (2) The composition of the applicant's current fleet; and
- (3) The applicant's delivery position with respect to new airplanes or noise-abatement equipment.

(d) Waivers will be granted only upon a showing by the applicant that compliance with the requirements of Secs. 91.865 or 91.867 at a particular interim compliance date is financially onerous, physically impossible, or technologically infeasible, or that it would have an adverse effect on competition or on service to small communities.

(e) The conditions of any waiver granted under this section shall be determined by the circumstances presented in the application, but in no case may the term extend beyond the next interim compliance date.

(f) A Summary of any request for a waiver under this section will be published in the Federal Register, and public comment will be invited. Unless the Secretary finds that circumstances require otherwise, the public comment period will be at least 14 days.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48660, Sept. 25, 1991]

#### Sec. 91.873 Waivers from final compliance.

(a) A U.S. air carrier may apply for a waiver from the prohibition contained in Sec. 91.853 for its remaining Stage 2 airplanes, provided that, by July 1, 1999, at least 85 percent of the airplanes used by the carrier to provide service to or from an airport in the contiguous United States will comply with the Stage 3 noise levels.

(b) An application for the waiver described in paragraph (a) of this section must be filed with the Secretary of Transportation no later than January 1, 1999. Such application must include a plan with firm orders for replacing or modifying all airplanes to comply with Stage 3 noise levels at the earliest practicable time.

(c) To be eligible to apply for the waiver under this section, a new entrant U.S. air carrier must initiate service no later than January 1, 1999, and must comply fully with all provisions of this section.

(d) The Secretary may grant a waiver under this section if the Secretary finds that granting such waiver is in the public interest. In making such a finding, the Secretary shall include consideration of the effect of granting such waiver on competition in the air carrier industry and the effect on small community air service, and any other information submitted by the applicant that the Secretary considers relevant.

(e) The term of any waiver granted under this section shall be determined by the circumstances presented in the application, but in no case will the waiver permit the operation of any Stage 2 airplane covered by this subchapter in the contiguous United States after December 31, 2003.

(f) A Summary of any request for a waiver under this section will be published in the Federal Register, and public comment will be invited. Unless the secretary finds that circumstances require otherwise, the public comment period will be at least 14 days.

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48660, Sept. 25, 1991; 56 FR 51167, Oct. 10, 1991]

Sec. 91.875 Annual progress reports.

(a) Each operator subject to Sec. 91.865 or Sec. 91.867 of this chapter shall submit an annual report to the FAA, Office of Environment and Energy, on the progress it has made toward complying with the requirements of that section. Such reports shall be submitted no later than 45 days after the end of a calendar year. All progress reports must provide the information through the end of the calendar year, be certified by the operator as true and complete (under penalty of 18 U.S.C. 1001), and include the following information:

- (1) The name and address of the operator;
- (2) The name, title, and telephone number of the person designated by the operator to be responsible for ensuring the accuracy of the information in the report;
- (3) The operator's progress during the reporting period toward compliance with the requirements of Sec. 91.853, Sec. 91.865 or Sec. 91.867. For airplanes on U.S. operations specifications, each operator shall identify the airplanes by type, model, series, and serial number.
  - (i) Each Stage 2 airplane added or removed from operation or U.S. operations specifications (grouped separately by those airplanes acquired with and without base level);
  - (ii) Each Stage 2 airplane modified to Stage 3 noise levels (identifying the manufacturer and model of noise abatement retrofit equipment;
  - (iii) Each Stage 3 airplane on U.S. operations specifications as of the last day of the reporting period; and
  - (iv) For each Stage 2 airplane transferred or acquired, the name and address of the recipient or transferor; and, if base level was transferred, the person to or from whom base level was transferred or acquired pursuant to Section 91.863 along with the effective date of each base level transaction, and the type of base level transferred or acquired.

(b) Each operator subject to Sec. 91.865 or Sec. 91.867 of this chapter shall submit an initial progress report covering the period from January 1, 1990, through December 31, 1991, and provide:

- (1) For each operator subject to Sec. 91.865:
  - (i) The date used to establish its base level pursuant to Sec. 91.861(a); and
  - (ii) a list of those Stage 2 airplanes (by type, model, series and serial number) in its base level, including adjustments made pursuant to Sec. 91.861 after the date its base level was established.

(2) For each U.S. operator:

- (i) A plan to meet the compliance schedules in Sec. 91.865 or Sec. 91.867 and the final compliance date of Sec. 91.853, including the schedule for delivery of replacement Stage 3 airplanes or the installation of noise abatement retrofit equipment; and

- (ii) A separate list (by type, model, series, and serial number) of those airplanes included in the operator's base level, pursuant to Sec. 91.861(a)(1) (i) and (ii), under the categories "returned" or "purchased," along with the date each was added to its operations specifications.

(c) Each operator subject to Sec. 91.865 or Sec. 91.867 of this chapter shall submit subsequent annual progress reports covering the calendar year preceding the report and including any changes in the information provided in paragraphs (a) and (b) of this section; including the use of any carry-forward credits pursuant to Sec. 91.869.

(d) An operator may request, in any report, that specific planning data be considered proprietary.

(e) If an operator's actions during any reporting period cause it to achieve compliance with Sec. 91.853, the report should include a statement to that effect. Further progress reports are not required unless there is any change in the information reported pursuant to paragraph (a) of this section.

(f) For each U.S. operator subject to Sec. 91.865, progress reports

submitted for calendar years 1994, 1996, and 1998, shall also state how the operator achieved compliance with the requirements of that section, i.e.--

(1) By reducing the number of Stage 2 airplanes in its fleet to no more than the maximum permitted percentage of its base level under Sec. 91.865(b), or

(2) By operating a fleet that consists of at least the minimum required percentage of Stage 3 airplanes under Sec. 91.865(d).

[Doc. No. 26433, Amdt. No. 91-225, 56 FR 48660, Sept. 25, 1991; 56 FR 51168, Oct. 10, 1991]

Editorial note: At 57 FR 5977, Feb. 19, 1992, the reporting requirements of Sec. 91.875 were approved by OMB on November 6, 1991, and have been assigned OMB Control Number 2120-0553.

#### Sec. 91.877 Annual reporting of Hawaiian operations.

(a) Each air carrier or foreign air carrier subject to Sec. 91.865 or Sec. 91.867 of this part that conducts operations between the contiguous United States and the State of Hawaii, between the State of Hawaii and any point outside of the contiguous United States, or between the islands of Hawaii in turnaround service, on or since November 5, 1990, shall include in its annual report the information described in paragraph (c) of this section.

(b) Each air carrier or foreign air carrier not subject to Sec. 91.865 or Sec. 91.867 of this part that conducts operations between the contiguous U.S. and the State of Hawaii, between the State of Hawaii and any point outside of the contiguous United States, or between the islands of Hawaii in turnaround service, on or since November 5, 1990, shall submit an annual report to the FAA, Office of Environment and Energy, on its compliance with the Hawaiian operations provisions of 49 U.S.C. 47528. Such reports shall be submitted no later than 45 days after the end of a calendar year. All progress reports must provide the information through the end of the calendar year, be certified by the operator as true and complete (under penalty of 18 U.S.C. 1001), and include the following information--

(1) The name and address of the air carrier or foreign air carrier;

(2) The name, title, and telephone number of the person designated by the air carrier or foreign air carrier to be responsible for ensuring the accuracy of the information in the report; and

(3) The information specified in paragraph (c) of this section.

(c) The following information must be included in reports filed pursuant to this section--

(1) For operations conducted between the contiguous United States and the State of Hawaii--

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990;

(ii) Any change to that number during the calendar year being reported, including the date of such change;

(2) For air carriers that conduct inter-island turnaround service in the State of Hawaii--

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990;

(ii) Any change to that number during the calendar year being reported, including the date of such change;

(iii) For an air carrier that provided inter-island turnaround service within the state of Hawaii on November 5, 1990, the number reported under paragraph (c)(2)(i) of this section may include all Stage 2 airplanes with a maximum certificated takeoff weight of more than 75,000 pounds that were

owned or leased by the air carrier on November 5, 1990, regardless of whether such airplanes were operated by that air carrier or foreign air carrier on that date.

(3) For operations conducted between the State of Hawaii and a point outside the contiguous United States--

(i) The number of Stage 2 airplanes used to conduct such operations as of November 5, 1990; and

(ii) Any change to that number during the calendar year being reported, including the date of such change.

(d) Reports or amended reports for years predating this regulation are required to be filed concurrently with the next annual report.

[Amdt. 91-252, 61 FR 66185, Dec. 16, 1996]

Secs. 91.878--91.899 [Reserved]

#### Subpart J--Waivers

Sec. 91.901 [Reserved]

Sec. 91.903 Policy and procedures.

(a) The Administrator may issue a certificate of waiver authorizing the operation of aircraft in deviation from any rule listed in this subpart if the Administrator finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

(b) An application for a certificate of waiver under this part is made on a form and in a manner prescribed by the Administrator and may be submitted to any FAA office.

(c) A certificate of waiver is effective as specified in that certificate of waiver.

Sec. 91.905 List of rules subject to waivers.

Sec.

91.107 Use of safety belts.

91.111 Operating near other aircraft.

91.113 Right-of-way rules: Except water operations.

91.115 Right-of-way rules: Water operations.

91.117 Aircraft speed.

91.119 Minimum safe altitudes: General.

91.121 Altimeter settings.

91.123 Compliance with ATC clearances and instructions.

91.125 ATC light signals.

91.126 Operating on or in the vicinity of an airport in Class G airspace.

91.127 Operating on or in the vicinity of an airport in Class E airspace.  
91.129 Operations in Class D airspace.  
91.130 Operations in Class C airspace.  
91.131 Operations in Class B airspace.  
91.133 Restricted and prohibited areas.  
91.135 Operations in Class A airspace.  
91.137 Temporary flight restrictions.  
91.141 Flight restrictions in the proximity of the Presidential and other parties.  
91.143 Flight limitation in the proximity of space flight operations.  
91.153 VFR flight plan: Information required.  
91.155 Basic VFR weather minimums  
91.157 Special VFR weather minimums.  
91.159 VFR cruising altitude or flight level.  
91.169 IFR flight plan: Information required.  
91.173 ATC clearance and flight plan required.  
91.175 Takeoff and landing under IFR.  
91.177 Minimum altitudes for IFR operations.  
91.179 IFR cruising altitude or flight level.  
91.181 Course to be flown.  
91.183 IFR radio communications.  
91.185 IFR operations: Two-way radio communications failure.  
91.187 Operation under IFR in controlled airspace: Malfunction reports.  
91.209 Aircraft lights.  
91.303 Aerobatic flights.  
91.305 Flight test areas.  
91.311 Towing: Other than under Sec. 91.309.  
91.313(e) Restricted category civil aircraft: Operating limitations.  
91.515 Flight altitude rules.  
91.705 Operations within the North Atlantic Minimum Navigation Performance Specifications Airspace.  
91.707 Flights between Mexico or Canada and the United States.  
91.713 Operation of civil aircraft of Cuban registry.

[Dkt. 18334, 54 FR 34325, Aug. 18, 1989, as amended by Amdt. 91-227, 56 FR 65661, Dec. 17, 1991]

Secs. 91.907--91.999 [Reserved]

## Appendix A to Part 91--Category II Operations: Manual, Instruments, Equipment, and Maintenance

### 1. Category II Manual

(a) Application for approval. An applicant for approval of a Category II manual or an amendment to an approved Category II manual must submit the proposed manual or amendment to the Flight Standards District Office having jurisdiction of the area in which the applicant is located. If the application requests an evaluation program, it must include the following:

(1) The location of the aircraft and the place where the demonstrations are to be conducted; and

(2) The date the demonstrations are to commence (at least 10 days after filing the application).

(b) Contents. Each Category II manual must contain:

(1) The registration number, make, and model of the aircraft to which it applies;

(2) A maintenance program as specified in section 4 of this appendix; and

(3) The procedures and instructions related to recognition of decision height, use of runway visual range information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Administrator.

## 2. Required Instruments and Equipment

The instruments and equipment listed in this section must be installed in each aircraft operated in a Category II operation. This section does not require duplication of instruments and equipment required by Sec. 91.205 or any other provisions of this chapter.

(a) Group I. (1) Two localizer and glide slope receiving systems. Each system must provide a basic ILS display and each side of the instrument panel must have a basic ILS display. However, a single localizer antenna and a single glide slope antenna may be used.

(2) A communications system that does not affect the operation of at least one of the ILS systems.

(3) A marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle markers.

(4) Two gyroscopic pitch and bank indicating systems.

(5) Two gyroscopic direction indicating systems.

(6) Two airspeed indicators.

(7) Two sensitive altimeters adjustable for barometric pressure, each having a placarded correction for altimeter scale error and for the wheel height of the aircraft. After June 26, 1979, two sensitive altimeters adjustable for barometric pressure, having markings at 20-foot intervals and each having a placarded correction for altimeter scale error and for the wheel height of the aircraft.

(8) Two vertical speed indicators.

(9) A flight control guidance system that consists of either an automatic approach coupler or a flight director system. A flight director system must display computed information as steering command in relation to an ILS localizer and, on the same instrument, either computed information as pitch command in relation to an ILS glide slope or basic ILS glide slope information. An automatic approach coupler must provide at least automatic steering in relation to an ILS localizer. The flight control guidance system may be operated from one of the receiving systems required by subparagraph (1) of this paragraph.

(10) For Category II operations with decision heights below 150 feet either a marker beacon receiver providing aural and visual indications of the inner marker or a radio altimeter.

(b) Group II. (1) Warning systems for immediate detection by the pilot of system faults in items (1), (4), (5), and (9) of Group I and, if installed for use in Category III operations, the radio altimeter and autothrottle system.

(2) Dual controls.

(3) An externally vented static pressure system with an alternate static pressure source.

(4) A windshield wiper or equivalent means of providing adequate cockpit

visibility for a safe visual transition by either pilot to touchdown and rollout.

(5) A heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

### 3. Instruments and Equipment Approval

(a) General. The instruments and equipment required by section 2 of this appendix must be approved as provided in this section before being used in Category II operations. Before presenting an aircraft for approval of the instruments and equipment, it must be shown that since the beginning of the 12th calendar month before the date of submission--

(1) The ILS localizer and glide slope equipment were bench checked according to the manufacturer's instructions and found to meet those standards specified in RTCA Paper 23-63/DO-117 dated March 14, 1963, "Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers," which may be obtained from the RTCA Secretariat, 1425 K St., NW., Washington, DC 20005.

(2) The altimeters and the static pressure systems were tested and inspected in accordance with Appendix E to Part 43 of this chapter; and

(3) All other instruments and items of equipment specified in section 2(a) of this appendix that are listed in the proposed maintenance program were bench checked and found to meet the manufacturer's specifications.

(b) Flight control guidance system. All components of the flight control guidance system must be approved as installed by the evaluation program specified in paragraph (e) of this section if they have not been approved for Category III operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model, or design of the components must be approved under this paragraph. Related systems or devices, such as the autothrottle and computed missed approach guidance system, must be approved in the same manner if they are to be used for Category II operations.

(c) Radio altimeter. A radio altimeter must meet the performance criteria of this paragraph for original approval and after each subsequent alteration.

(1) It must display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain.

(2) It must display wheel height above the terrain to an accuracy of plus or minus 5 feet or 5 percent, whichever is greater, under the following conditions:

(i) Pitch angles of zero to plus or minus 5 degrees about the mean approach attitude.

(ii) Roll angles of zero to 20 degrees in either direction.

(iii) Forward velocities from minimum approach speed up to 200 knots.

(iv) Sink rates from zero to 15 feet per second at altitudes from 100 to 200 feet.

(3) Over level ground, it must track the actual altitude of the aircraft without significant lag or oscillation.

(4) With the aircraft at an altitude of 200 feet or less, any abrupt change in terrain representing no more than 10 percent of the aircraft's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds and, in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second.

(5) Systems that contain a push-to-test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 500 feet.

(6) The system must provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(d) Other instruments and equipment. All other instruments and items of equipment required by Sec. 2 of this appendix must be capable of performing

as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

(e) Evaluation program--(1) Application. Approval by evaluation is requested as a part of the application for approval of the Category II manual.

(2) Demonstrations. Unless otherwise authorized by the Administrator, the evaluation program for each aircraft requires the demonstrations specified in this paragraph. At least 50 ILS approaches must be flown with at least five approaches on each of three different ILS facilities and no more than one half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 100-foot decision height and 90 percent of the total approaches made must be successful. A successful approach is one in which--

(i) At the 100-foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be plus or minus 5 knots of programmed airspeed, but may not be less than computed threshold speed if autothrottles are used);

(ii) The aircraft at the 100-foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;

(iii) Deviation from glide slope after leaving the outer marker does not exceed 50 percent of full-scale deflection as displayed on the ILS indicator;

(iv) No unusual roughness or excessive attitude changes occur after leaving the middle marker; and

(v) In the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.

(3) Records. During the evaluation program the following information must be maintained by the applicant for the aircraft with respect to each approach and made available to the Administrator upon request:

(i) Each deficiency in airborne instruments and equipment that prevented the initiation of an approach.

(ii) The reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued.

(iii) Speed control at the 100-foot decision height if auto throttles are used.

(iv) Trim condition of the aircraft upon disconnecting the auto coupler with respect to continuation to flare and landing.

(v) Position of the aircraft at the middle marker and at the decision height indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touchdown point must be indicated on the runway diagram.

(vi) Compatibility of flight director with the auto coupler, if applicable.

(vii) Quality of overall system performance.

(4) Evaluation. A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

#### 4. Maintenance program

(a) Each maintenance program must contain the following:

(1) A list of each instrument and item of equipment specified in Sec. 2 of this appendix that is installed in the aircraft and approved for Category II operations, including the make and model of those specified in Sec. 2(a).

(2) A schedule that provides for the performance of inspections under subparagraph (5) of this paragraph within 3 calendar months after the date of the previous inspection. The inspection must be performed by a person authorized by part 43 of this chapter, except that each alternate inspection

may be replaced by a functional flight check. This functional flight check must be performed by a pilot holding a Category II pilot authorization for the type aircraft checked.

(3) A schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in section 2(a) within 12 calendar months after the date of the previous bench check.

(4) A schedule that provides for the performance of a test and inspection of each static pressure system in accordance with appendix E to part 43 of this chapter within 12 calendar months after the date of the previous test and inspection.

(5) The procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in section 2(a) of this appendix to perform as approved for Category II operations including a procedure for recording functional flight checks.

(6) A procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment.

(7) A procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations.

(8) A procedure for an entry in the maintenance records required by Sec. 43.9 of this chapter that shows the date, airport, and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

(b) Bench check. A bench check required by this section must comply with this paragraph.

(1) It must be performed by a certificated repair station holding one of the following ratings as appropriate to the equipment checked:

(i) An instrument rating.

(ii) A radio rating.

(iii) A rating issued under subpart D of part 145 of this chapter.

(2) It must consist of removal of an instrument or item of equipment and performance of the following:

(i) A visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;

(ii) Correction of items found by that visual inspection; and

(iii) Calibration to at least the manufacturer's specifications unless otherwise specified in the approved Category II manual for the aircraft in which the instrument or item of equipment is installed.

(c) Extensions. After the completion of one maintenance cycle of 12 calendar months, a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34325, Aug. 18, 1989]

## Appendix B to Part 91--Authorizations to Exceed Mach 1 (section 91.817)

### Section 1. Application

(a) An applicant for an authorization to exceed Mach 1 must apply in a form and manner prescribed by the Administrator and must comply with this appendix.

(b) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this appendix must contain all information requested by the Administrator necessary to assist him in determining whether

the designation of a particular test area or issuance of a particular authorization is a "major Federal action significantly affecting the quality of the human environment" within the meaning of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), and to assist him in complying with that act and with related Executive Orders, guidelines, and orders prior to such action.

(c) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this appendix must contain--

(1) Information showing that operation at a speed greater than Mach 1 is necessary to accomplish one or more of the purposes specified in section 2(a) of this appendix, including a showing that the purpose of the test cannot be safely or properly accomplished by overocean testing;

(2) A description of the test area proposed by the applicant, including an environmental analysis of that area meeting the requirements of paragraph (b) of this section; and

(3) Conditions and limitations that will ensure that no measurable sonic boom overpressure will reach the surface outside of the designated test area.

(d) An application is denied if the Administrator finds that such action is necessary to protect or enhance the environment.

## Section 2. Issuance

(a) For a flight in a designated test area, an authorization to exceed Mach 1 may be issued when the Administrator has taken the environmental protective actions specified in section 1(b) of this appendix and the applicant shows one or more of the following:

(1) The flight is necessary to show compliance with airworthiness requirements.

(2) The flight is necessary to determine the sonic boom characteristics of the airplane or to establish means of reducing or eliminating the effects of sonic boom.

(3) The flight is necessary to demonstrate the conditions and limitations under which speeds greater than a true flight Mach number of 1 will not cause a measurable sonic boom overpressure to reach the surface.

(b) For a flight outside of a designated test area, an authorization to exceed Mach 1 may be issued if the applicant shows conservatively under paragraph (a)(3) of this section that--

(1) The flight will not cause a measurable sonic boom overpressure to reach the surface when the aircraft is operated under conditions and limitations demonstrated under paragraph (a)(3) of this section; and

(2) Those conditions and limitations represent all foreseeable operating conditions.

## Section 3. Duration

(a) An authorization to exceed Mach 1 is effective until it expires or is surrendered, or until it is suspended or terminated by the Administrator. Such an authorization may be amended or suspended by the Administrator at any time if the Administrator finds that such action is necessary to protect the environment. Within 30 days of notification of amendment, the holder of the authorization must request reconsideration or the amendment becomes final. Within 30 days of notification of suspension, the holder of the authorization must request reconsideration or the authorization is automatically terminated. If reconsideration is requested within the 30-day period, the amendment or suspension continues until the holder shows why the authorization should not be amended or terminated. Upon such showing, the Administrator may terminate or amend the authorization if the Administrator finds that such action is necessary to protect the environment, or he may reinstate the authorization without amendment if he finds that termination or amendment is not necessary to protect the environment.

(b) Findings and actions by the Administrator under this section do not affect any certificate issued under Title VI of the Federal Aviation Act of 1958.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34327, Aug. 18, 1989]

## Appendix C to Part 91--Operations in the North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace

### Section 1

NAT MNPS airspace is that volume of airspace between FL 285 and FL 420 extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik Oceanic and in the west by the western boundary of Reykjavik Oceanic Control Area, the western boundary of Gander Oceanic Control Area, and the western boundary of New York Oceanic Control Area, excluding the areas west of 60 degrees west and south of 38 degrees 30 minutes north.

### Section 2

The navigation performance capability required for aircraft to be operated in the airspace defined in section 1 of this appendix is as follows:

(a) The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 Km). Standard deviation is a statistical measure of data about a mean value. The mean is zero nautical miles. The overall form of data is such that the plus and minus 1 standard deviation about the mean encompasses approximately 68 percent of the data and plus or minus 2 deviations encompasses approximately 95 percent.

(b) The proportion of the total flight time spent by aircraft 30 NM (55.6 Km) or more off the cleared track shall be less than  $5.3 \times 10^{-4}$  (less than 1 hour in 1,887 flight hours).

(c) The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 Km and 129.6 Km) off the cleared track shall be less than  $13 \times 10^{-5}$  (less than 1 hour in 7,693 flight hours.)

### Section 3

Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of Sec. 91.705 for a specific flight if, at the time of flight plan filing for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft which meet the requirements of Sec. 91.705.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34327, Aug. 18, 1989, as amended at Amdt. 91-254, 62 FR 17487, Apr. 9, 1997]

## Appendix D--Airports/Locations: Special Operating Restrictions

Section 1. Locations at which the requirements of Sec. 91.215(b) (2) apply. The requirements of Sec. 91.215(b) (2) apply below 10,000 feet above the

surface within a 30-nautical-mile radius of each location in the following list:

Atlanta, GA (The William B. Hartsfield Atlanta International Airport)  
Baltimore, MD (Baltimore Washington International Airport)  
Boston, MA (General Edward Lawrence Logan International Airport)  
Chantilly, VA (Washington Dulles International Airport)  
Charlotte, NC (Charlotte/Douglas International Airport)  
Chicago, IL Chicago-O'Hare International Airport)  
Cleveland, OH (Cleveland-Hopkins International Airport)  
Covington, KY (Cincinnati Northern Kentucky International Airport)  
Dallas, TX (Dallas/Fort Worth Regional Airport)  
Denver, CO (Denver International Airport)  
Detroit, MI (Metropolitan Wayne County Airport)  
Honolulu, HI (Honolulu International Airport)  
Houston, TX (George Bush Intercontinental Airport/Houston)  
Kansas City, KS (Mid-Continent International Airport)  
Las Vegas, NV (McCarran International Airport)  
Los Angeles, CA (Los Angeles International Airport)  
Memphis, TN (Memphis International Airport)  
Miami, FL (Miami International Airport)  
Minneapolis, MN (Minneapolis-St. Paul International Airport)  
Newark, NJ (Newark International Airport)  
New Orleans, LA (New Orleans International Airport-Moisant Field)  
New York, NY (John F. Kennedy International Airport)  
New York, NY (LaGuardia Airport)  
Orlando, FL (Orlando International Airport)  
Philadelphia, PA (Philadelphia International Airport)  
Phoenix, AZ (Phoenix Sky Harbor International Airport)  
Pittsburgh, PA (Greater Pittsburgh International Airport)  
St. Louis, MO (Lambert-St. Louis International Airport)  
Salt Lake City, UT (Salt Lake City International Airport)  
San Diego, CA (San Diego International Airport)  
San Francisco, CA (San Francisco International Airport)  
Seattle, WA (Seattle-Tacoma International Airport)  
Tampa, FL (Tampa International Airport)  
Washington, DC (Ronald Reagan Washington National Airport and Andrews Air Force Base, MD)

## Section 2. [Reserved]

Section 3. Locations at which fixed-wing Special VFR operations are prohibited.

The Special VFR weather minimums of Sec. 91.157 do not apply to the following airports:

Atlanta, GA (The William B. Hartsfield Atlanta International Airport)  
Baltimore, MD (Baltimore/Washington International Airport)  
Boston, MA (General Edward Lawrence Logan International Airport)  
Buffalo, NY (Greater Buffalo International Airport)  
Chicago, IL (Chicago-O'Hare International Airport)  
Cleveland, OH (Cleveland-Hopkins International Airport)  
Columbus, OH (Port Columbus International Airport)  
Covington, KY (Cincinnati Northern Kentucky International Airport)  
Dallas, TX (Dallas/Fort Worth Regional Airport)  
Dallas, TX (Love Field)  
Denver, CO (Denver International Airport)  
Detroit, MI (Metropolitan Wayne County Airport)  
Honolulu, HI (Honolulu International Airport)

Houston, TX (George Bush Intercontinental Airport/Houston)  
 Indianapolis, IN (Indianapolis International Airport)  
 Los Angeles, CA (Los Angeles International Airport)  
 Louisville, KY (Standiford Field)  
 Memphis, TN (Memphis International Airport)  
 Miami, FL (Miami International Airport)  
 Minneapolis, MN (Minneapolis-St. Paul International Airport)  
 Newark, NJ (Newark International Airport)  
 New York, NY (John F. Kennedy International Airport)  
 New York, NY (LaGuardia Airport)  
 New Orleans, LA (New Orleans International Airport-Moisant Field)  
 Philadelphia, PA (Philadelphia International Airport)  
 Pittsburgh, PA (Greater Pittsburgh International Airport)  
 Portland, OR (Portland International Airport)  
 San Francisco, CA (San Francisco International Airport)  
 Seattle, WA (Seattle-Tacoma International Airport)  
 St. Louis, MO (Lambert-St. Louis International Airport)  
 Tampa, FL (Tampa International Airport)  
 Washington, DC (Ronald Reagan Washington National Airport and  
 Andrews Air Force Base, MD)

Section 4. Locations at which solo student pilot activity is not permitted.

Pursuant to Sec. 91.131(b)(2), solo student pilot operations are not permitted at any of the following airports.

Atlanta, GA (The William B. Hartsfield Atlanta International Airport)  
 Boston, MA (General Edward Lawrence Logan International Airport)  
 Chicago, IL (Chicago-O'Hare International Airport)  
 Dallas, TX (Dallas/Fort Worth Regional Airport)  
 Los Angeles, CA (Los Angeles International Airport)  
 Miami, FL (Miami International Airport)  
 Newark, NJ (Newark International Airport)  
 New York, NY (John F. Kennedy International Airport)  
 New York, NY (LaGuardia Airport)  
 San Francisco, CA (San Francisco International Airport)  
 Washington, DC (Washington National Airport)  
 Andrews Air Force Base, MD

[Amdt. No. 91-227, 56 FR 65661, Dec. 17, 1991, as amended by Amdt. 91-235, 58 FR 51968, Oct. 5, 1993; 58 FR 57549, Oct. 26, 1993; Amdt. 91-236, 59 FR 2918, Jan. 19, 1994; Amdt. 91-237, 59 FR 6547, Feb. 11, 1994; Amdt. 91-238, 59 FR 10958, Mar. 9, 1994; Amdt. 91-241, 59 FR 24916, May 13, 1994; 59 FR 29716, June 9, 1994; Amdt. 91-243, 60 FR 8166, Feb. 10, 1995; Amdt. 91-258, 64 FR 66768, Nov. 30, 1999]

Appendix E to Part 91--Airplane Flight Recorder Specifications

Parameters	Range	Installed system /1/ minimum accuracy (to recovered data)	Sampling interval (per second)	Resolution/4/ read out
Relative Time (From Recorded on Prior to Takeoff)	8 hr minimum	+/-0.125% per hour	1	1 sec.

Indicated Airspeed	Vso to VD (KIAS)	+/-5% or +/- 10 kts., whichever is greater. Resolution 2 kts. below 175 KIAS	1	1% /3/
Altitude	-1,000 ft. to max cert. alt. of A/C	+/-100 to +/- 700 ft. (see Table 1, TSO C51-a)	11	25 to 150 ft.
Magnetic Heading	360 deg.	+/-5 deg.	1	1 deg.
Vertical Acceleration	-3g to +6g	+/-0.2g in addition to +/-0.3g maximum datum recorded)	4 (or 1 per second where peaks, ref. to 1g are recorded)	0.03g.
Longitudinal Acceleration	+/-1.0g	+/-1.5% max. range excluding datum error of +/-5%	2	0.01g.
Pitch Attitude	100% of usable	+/-2 deg.	1	0.8 deg.
Roll Attitude	+/-60 deg. or 100% of usable range, whichever is greater	+/-2 deg.	1	0.8 deg.
Stabilizer Trim Position, or	Full Range	+/-3% unless higher uniquely required	1	1% /3/
Pitch Control Position				
Engine Power, Each Engine:	Full Range	+/-3% unless higher uniquely required	1	1% /3/
Fan or N1 Speed or EPR or Cockpit indications Used for Aircraft Certification OR	Maximum Range	+/-5%	1	1% /3/
Prop. speed and Torque (Sample Once/ Sec as Close together as Practicable)			1 (prop Speed) 1 (torque)	1% /3/ 1% /3/
Altitude Rate/2/ (need depends on altitude resolution)	+/-8,000 fpm	+/-10%. Resolution 250 fpm below 12,000 ft. indicated	1	250 fpm. below 12,000

Angle of Attack/2/ (need depends on altitude resolution)	-20 deg. to 40 deg. or 100% of usable range	+/-2 deg.	1	0.8% /3/
Radio Transmitter Keying (Discrete)	On/Off		1	
TE Flaps (Discrete or Analog)	Each discrete position (U, D, T/O, AAP) OR		1	
LE Flaps (Discrete or Analog)	Analog 0-100% range	+/-3%	1	1% /3/
	Each discrete position (U, D, T/O, AAP) OR		1	
Thrust Reverser, Each Engine (Discrete)	Analog 0-100% range Stowed or full reverse	+/-3 deg.	1	1% /3/
Spoiler/ Speedbrake (Discrete)	Stowed or out		1	
Autopilot Engaged (Discrete)	Engaged or Disengaged		1	

/1/ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

/2/ If data from the altitude encoding altimeter (100 ft. resolution) is used, then either one of these parameters should also be recorded. If however, altitude is recorded at a minimum resolution of 25 feet, then these two parameters can be omitted.

/3/ Per cent of full range.

/4/ This column applies to aircraft manufactured after October 11, 1991.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34327, Aug. 18, 1989]

#### Appendix F to Part 91--Helicopter Flight Recorder Specifications

Parameters	Range	Installed system /1/ minimum accuracy (to recovered data)	Sampling interval (per second)	Resolution /3/ read out
Relative Time	4 hr minimum	+/-0.125% per	1	1 sec.

(From Recorded on Prior to Takeoff)		hour		
Indicated Airspeed	VM in to VD (KIAS) (minimum airspeed signal attainable with installed pilot-static system)	+/-5% or +/- 10 kts., whichever is greater	1	1 kt.
Altitude	-1,000 ft. to 20,000 ft. pressure altitude	+/-100 to +/- 700 ft. (see Table 1, TSO C51-a)	1	25 to 150 ft.
Magnetic Heading	360 deg.	+/-5 deg.	1	1 deg.
Vertical Acceleration	-3g to +6g	+/-0.2g in addition to +/-0.3g maximum datum	4 (or 1 per second where peaks, ref. to 1g are recorded)	0.05g.
Longitudinal Acceleration	+/-1.0g	+/-1.5% max. range excluding datum error of +/-	2	0.03g.
Pitch Attitude	100% of usable range	+/-2 deg.	1	0.8 deg.
Roll Attitude	+/-60 or 100% of usable range, whichever is greater	+/-2 deg.	1	0.8 deg.
Altitude Rate	+/-8,000 fpm	+/-10% Resolution 250 fpm below 12,000 ft. indicated	1	250 fpm below 12,000.
Engine Power, Each Engine				
Main Rotor Speed	Maximum Range	+/-5%	1	1% /2/.
Free or Power Turbine	Maximum Range	+/-5%	1	1% /2/.
Engine Torque	Maximum Range	+/-5%	1	1% /2/.
Flight Control Hydraulic Pressure				
Primary (Discrete)	High/Low		1	

Secondary--if applicable (Discrete)	High/Low		1	
Radio Transmitter Keying (Discrete)	On/Off		1	
Autopilot Engaged (Discrete)	Engaged or Disengaged		1	
SAS Status- Engaged (Discrete)	Engaged or Disengaged		1	
SAS Fault Status (Discrete)	Fault/OK		1	
Flight Controls				
Collective	Full range	+/-3%	2	1% /2/.
Pedal	Full range	+/-3%	2	1% /2/.
Position				
Lat. Cyclic	Full range	+/-3%	2	1% /2/.
Long. Cyclic	Full range	+/-3%	2	1% /2/.
Controllable Stabilator Position	Full range	+/-3%	2	1% /2/.

/1/ When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

/2/ Per cent of full range.

/3/ This column applies to aircraft manufactured after October 11, 1991.

[Doc. No. 18334, Amdt. 91-211, 54 FR 34328, Aug. 18, 1989; 54 FR 41211, Oct. 5, 1989; 54 FR 53036, Dec. 26, 1989]

## Appendix G to Part 91--Operations in Reduced Vertical Separation Minimum (RVSM) Airspace

### Section 1. Definitions

Reduced Vertical Separation Minimum (RVSM) Airspace. Within RVSM airspace, air traffic control (ATC) separates aircraft by a minimum of 1,000 feet vertically between flight level (FL) 290 and FL 410 inclusive. RVSM airspace is special qualification airspace; the operator and the aircraft used by the operator must be approved by the Administrator. Air-traffic control notifies operators of RVSM by providing route planing information. Section 8 of this appendix identifies airspace where RVSM may be applied.

RVSM Group Aircraft. Aircraft within a group of aircraft, approved as a group by the Administrator, in which each of the aircraft satisfy each of the following:

(a) The aircraft have been manufactured to the same design, and have been approved under the same type certificate, amended type certificate, or

supplemental type certificate.

(b) The static system of each aircraft is installed in a manner and position that is the same as those of the other aircraft in the group. The same static source error correction is incorporated in each aircraft of the group.

(c) The avionics units installed in each aircraft to meet the minimum RVSM equipment requirements of this appendix are:

(1) Manufactured to the same manufacturer specification and have the same part number; or

(2) Of a different manufacturer or part number, if the applicant demonstrates that the equipment provides equivalent system performance.

RVSM Nongroup Aircraft. An aircraft that is approved for RVSM operations as an individual aircraft.

RVSM Flight envelope. An RVSM flight envelope includes the range of Mach number, weight divided by atmospheric pressure ratio, and altitudes over which an aircraft is approved to be operated in cruising flight within RVSM airspace. RVSM flight envelopes are defined as follows:

(a) The full RVSM flight envelope is bounded as follows:

(1) The altitude flight envelope extends from FL 290 upward to the lowest altitude of the following:

(i) FL 410 (the RVSM altitude limit);

(ii) The maximum certificated altitude for the aircraft; or

(iii) The altitude limited by cruise thrust, buffet, or other flight limitations.

(2) The airspeed flight envelope extends:

(i) From the airspeed of the slats/flaps-up maximum endurance (holding) airspeed, or the maneuvering airspeed, whichever is lower;

(ii) To the maximum operating airspeed (V<sub>mo</sub>/M<sub>mo</sub>), or airspeed limited by cruise thrust buffet, or other flight limitations, whichever is lower.

(3) All permissible gross weights within the flight envelopes defined in paragraphs (1) and (2) of this definition.

(b) The basic RVSM flight envelope is the same as the full RVSM flight envelope except that the airspeed flight envelope extends:

(1) From the airspeed of the slats/flaps-up maximum endurance (holding) airspeed, or the maneuver airspeed, whichever is lower;

(2) To the upper Mach/airspeed boundary defined for the full RVSM flight envelope, or a specified lower value not less than the long-range cruise Mach number plus .04 Mach, unless further limited by available cruise thrust, buffet, or other flight limitations.

## Section 2. Aircraft Approval

(a) An operator may be authorized to conduct RVSM operations if the Administrator finds that its aircraft comply with this section.

(b) The applicant for authorization shall submit the appropriate data package for aircraft approval. The package must consist of at least the following:

(1) An identification of the RVSM aircraft group or the nongroup aircraft;

(2) A definition of the RVSM flight envelopes applicable to the subject aircraft;

(3) Documentation that establishes compliance with the applicable RVSM aircraft requirements of this section; and

(4) The conformity tests used to ensure that aircraft approved with the data package meet the RVSM aircraft requirements.

(c) Altitude-keeping equipment: All aircraft. To approve an aircraft group or a nongroup aircraft, the Administrator must find that the aircraft meets the following requirements:

(1) The aircraft must be equipped with two operational independent altitude measurement systems.

(2) The aircraft must be equipped with at least one automatic altitude

control system that controls the aircraft altitude--

(i) Within a tolerance band of  $\pm 65$  feet about an acquired altitude when the aircraft is operated in straight and level flight under nonturbulent, nongust conditions; or

(ii) Within a tolerance band of  $\pm 130$  feet under nonturbulent, nongust conditions for aircraft for which application for type certification occurred on or before April 9, 1997 that are equipped with an automatic altitude control system with flight management/performance system inputs.

(3) The aircraft must be equipped with an altitude alert system that signals an alert when the altitude displayed to the flight crew deviates from the selected altitude by more than:

(i)  $\pm 300$  feet for aircraft for which application for type certification was made on or before April 9, 1997; or

(ii)  $\pm 200$  feet for aircraft for which application for type certification is made after April 9, 1997.

(d) Altimetry system error containment: Group aircraft for which application for type certification was made on or before April 9, 1997. To approve group aircraft for which application for type certification was made on or before April 9, 1997, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the basic RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 80 feet.

(2) At the point in the basic RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 200 feet.

(3) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 120 feet.

(4) At the point in the full RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 245 feet.

(5) Necessary operating restrictions. If the applicant demonstrates that its aircraft otherwise comply with the ASE containment requirements, the Administrator may establish an operating restriction on that applicant's aircraft to restrict the aircraft from operating in areas of the basic RVSM flight envelope where the absolute value of mean ASE exceeds 80 feet, and/or the absolute value of mean ASE plus three standard deviations exceeds 200 feet; or from operating in areas of the full RVSM flight envelope where the absolute value of the mean ASE exceeds 120 feet and/or the absolute value of the mean ASE plus three standard deviations exceeds 245 feet.

(e) Altimetry system error containment: Group aircraft for which application for type certification is made after April 9, 1997. To approve group aircraft for which application for type certification is made after April 9, 1997, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) At the point in the full RVSM flight envelope where mean ASE reaches its largest absolute value, the absolute value may not exceed 80 feet.

(2) At the point in the full RVSM flight envelope where mean ASE plus three standard deviations reaches its largest absolute value, the absolute value may not exceed 200 feet.

(f) Altimetry system error containment: Nongroup aircraft. To approve a nongroup aircraft, the Administrator must find that the altimetry system error (ASE) is contained as follows:

(1) For each condition in the basic RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 160 feet.

(2) For each condition in the full RVSM flight envelope, the largest combined absolute value for residual static source error plus the avionics error may not exceed 200 feet.

(g) If the Administrator finds that the applicant's aircraft comply with this section, the Administrator notifies the applicant in writing.

### Section 3. Operator Authorization

(a) Authority for an operator to conduct flight in airspace where RVSM is applied is issued in operations specifications or a Letter of Authorization, as appropriate. To issue an RVSM authorization, the Administrator must find that the operator's aircraft have been approved in accordance with Section 2 of this appendix and that the operator complies with this section.

(b) An applicant for authorization to operate within RVSM airspace shall apply in a form and manner prescribed by the Administrator. The application must include the following:

(1) An approved RVSM maintenance program outlining procedures to maintain RVSM aircraft in accordance with the requirements of this appendix. Each program must contain the following:

(i) Periodic inspections, functional flight tests, and maintenance and inspection procedures, with acceptable maintenance practices, for ensuring continued compliance with the RVSM aircraft requirements.

(ii) A quality assurance program for ensuring continuing accuracy and reliability of test equipment used for testing aircraft to determine compliance with the RVSM aircraft requirements.

(iii) Procedures for returning noncompliant aircraft to service.

(2) For an applicant who operates under part 121 or 135, initial and recurring pilot training requirements.

(3) Policies and Procedures. An applicant who operates under part 121 or 135 shall submit RVSM policies and procedures that will enable it to conduct RVSM operations safely.

(c) Validation and Demonstration. In a manner prescribed by the Administrator, the operator must provide evidence that:

(1) It is capable to operate and maintain each aircraft or aircraft group for which it applies for approval to operate in RVSM airspace; and

(2) Each pilot has an adequate knowledge of RVSM requirements, policies, and procedures.

### Section 4. RVSM Operations

(a) Each person requesting a clearance to operate within RVSM airspace shall correctly annotate the flight plan filed with air traffic control with the status of the operator and aircraft with regard to RVSM approval. Each operator shall verify RVSM applicability for the flight planned route through the appropriate flight planning information sources.

(b) No person may show, on the flight plan filed with air traffic control, an operator or aircraft as approved for RVSM operations, or operate on a route or in an area where RVSM approval is required, unless:

(1) The operator is authorized by the Administrator to perform such operations; and

(2) The aircraft has been approved and complies with the requirements of Section 2 of this appendix.

### Section 5. Deviation Authority Approval

The Administrator may authorize an aircraft operator to deviate from the requirements of Sec. 91.706 for a specific flight in RVSM airspace if that operator has not been approved in accordance with Section 3 of this appendix, and if:

(2) The operator submits an appropriate request with the air traffic control center controlling the airspace, (request should be made at least 48 hours in advance of the operation unless prevented by exceptional circumstances); and

(b) At the time of filing the flight plan for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden on, the operations of operators

who have been approved for RVSM operations in accordance with Section 3 of this appendix.

#### Section 6. Reporting Altitude-Keeping Errors

Each operator shall report to the Administrator each event in which the operator's aircraft has exhibited the following altitude-keeping performance:

- (a) Total vertical error of 300 feet or more;
- (b) Altimetry system error of 245 feet or more; or
- (c) Assigned altitude deviation of 300 feet or more.

#### Section 7. Removal or Amendment of Authority

The Administrator may amend operations specifications to revoke or restrict an RVSM authorization, or may revoke or restrict an RVSM letter of authorization, if the Administrator determines that the operator is not complying, or is unable to comply, with this appendix or subpart H of this part. Examples of reasons for amendment, revocation, or restriction include, but are not limited to, an operator's:

- (a) Committing one or more altitude-keeping errors in RVSM airspace;
- (b) Failing to make an effective and timely response to identify and correct an altitude-keeping error; or
- (c) Failing to report an altitude-keeping error.

#### Section 8. Airspace Designation

- (a) RVSM in the North Atlantic.

(1) RVSM may be applied in the NAT in the following ICAO Flight Information Regions (FIRs): New York Oceanic, Gander Oceanic, Sondrestrom FIR, Reykjavik Oceanic, Shanwick Oceanic, and Santa Maria Oceanic.

(2) RVSM may be effective in the Minimum Navigation Performance Specification (MNPS) airspace within the NAT. The MNPS airspace within the NAT is defined by the volume of airspace between FL 285 and FL 420 (inclusive) extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik Oceanic and in the west by the western boundaries of control areas Reykjavik Oceanic, Gander Oceanic, and New York Oceanic, excluding the areas west of 60 degrees west and south of 38 degrees 30 minutes north.

- (b) RVSM in the Pacific.

(1) RVSM may be applied in the Pacific in the following ICAO Flight Information Regions (FIRs): Anchorage Arctic, Anchorage Continental, Anchorage Oceanic, Auckland Oceanic, Brisbane, Edmonton, Honiara, Los Angeles, Melbourne, Nadi, Naha, Nauru, New Zealand, Oakland, Oakland Oceanic, Port Moresby, Seattle, Tahiti, Tokyo, Ujung Pandang and Vancouver.

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